



# **UCLA** General Catalog **2024-25 Courses**

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# Aerospace Studies – Air Force ROTC

## Aerospace Studies Courses

### Lower Division

**1A. Heritage and Values (2)** Lecture, one hour. Introduction to U.S. Air Force. Examination of general aspects of Department of Air Force, leadership, benefits, and opportunities for officers. Foundation for becoming airmen by outlining heritage and values. Provides historical perspective through lessons on war and U.S. military, Air Force operations, principles of war, and airpower. Provides students with understanding for employment of air and space power, from institutional, doctrinal, and historical perspective. Students are introduced to Air Force way of life and gain knowledge on what it means to be airmen. P/NP or letter grading.

**1B. Heritage and Values (2)** Lecture, one hour. Introduction to U.S. Air Force. Examination of general aspects of Department of Air Force, leadership, benefits, and opportunities for officers. Foundation for becoming airmen by outlining heritage and values. Provides historical perspective through lessons on war and U.S. military, Air Force operations, principles of war, and airpower. Provides students with understanding for employment of air and space power, from institutional, doctrinal, and historical perspective. Students are introduced to Air Force way of life and gain knowledge on what it means to be airmen. P/NP or letter grading.

**1C. Heritage and Values (2)** Lecture, one hour. Introduction to U.S. Air Force. Examination of general aspects of Department of Air Force, leadership, benefits, and opportunities for officers. Foundation for becoming airmen by outlining heritage and values. Provides historical perspective through lessons on war and U.S. military, Air Force operations, principles of war, and airpower. Provides students with understanding for employment of air and space power, from institutional, doctrinal, and historical perspective. Students are introduced to Air Force way of life and gain knowledge on what it means to be airmen. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Team and Leadership Fundamentals (2)** Lecture, one hour. Designed to provide fundamental understanding of both leadership and team building. Cadets are taught many layers of leadership, including listening, understanding themselves, being good follower and efficient problem solving. Students apply these leadership perspectives when completing team building activities and discussing conflict management. Demonstration of basic verbal and written communication skills. P/NP or letter grading.

**20B. Team and Leadership Fundamentals (2)** Lecture, one hour. Designed to provide fundamental understanding of both leadership and team building. Cadets are taught many layers of leadership, including listening, understanding themselves, being good follower and efficient problem solving. Students apply these leadership perspectives when completing team building activities and discussing conflict management. Demonstration of basic verbal and written communication skills. P/NP or letter grading.

**20C. Team and Leadership Fundamentals (2)** Lecture, one hour. Designed to provide fundamental understanding of both leadership and team building. Cadets are taught many layers of leadership, including listening, understanding themselves, being good follower and efficient problem solving. Students

apply these leadership perspectives when completing team building activities and discussing conflict management. Demonstration of basic verbal and written communication skills. P/NP or letter grading.

### Upper Division

**130A. Air Force Leadership Studies (4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Designed to provide cadets with leadership overview. Basic leadership skills for cadets beginning leadership role in detachment. Lessons on military relationships and rules that military members must follow when interacting with enlisted members and officers. Continuation of advanced skills and ethics training in preparation for becoming officer and supervisor. Introduction to variety of leadership topics in preparation to be effective leaders. P/NP or letter grading.

**130B. Air Force Leadership Studies (4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Designed to provide cadets with leadership overview. Basic leadership skills for cadets beginning leadership role in detachment. Lessons on military relationships and rules that military members must follow when interacting with enlisted members and officers. Continuation of advanced skills and ethics training in preparation for becoming officer and supervisor. Introduction to variety of leadership topics in preparation to be effective leaders. P/NP or letter grading.

**130C. Air Force Leadership Studies (4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Designed to provide cadets with leadership overview. Basic leadership skills for cadets beginning leadership role in detachment. Lessons on military relationships and rules that military members must follow when interacting with enlisted members and officers. Continuation of advanced skills and ethics training in preparation for becoming officer and supervisor. Introduction to variety of leadership topics in preparation to be effective leaders. P/NP or letter grading.

**140A. National Security Affairs/Preparation for Active Duty (4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of national security processes, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics focus on military as profession, officership, military justice, civilian control of military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis on refining communication skills. P/NP or letter grading.

**140B. National Security Affairs/Preparation for Active Duty (4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of national security processes, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics focus on military as profession, officership, military justice, civilian control of military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis on refining communication skills. P/NP or letter grading.

**140C. National Security Affairs/Preparation for Active Duty (4)** Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of national security processes, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics focus on military as profession, officership, military justice, civilian control of military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis on refining communication skills. P/NP or letter grading.

**197. Individual Studies in Aerospace Studies (2, 4)** Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**A. Leadership Laboratory (0)** Laboratory, three hours. Mandatory for and limited to Air Force ROTC cadets. Provides cadets with practical command and staff leadership experiences through performance of various tasks within framework of organized cadet corps. As integral part of aerospace studies curriculum, provides experiences designed to develop leadership potential and serves as orientation to active duty. P/NP grading.

# African American Studies

## African American Studies Courses

### Lower Division

**1. Introduction to Black Studies (5)** Lecture, three hours; discussion, one hour. Introduction of methods, theories, conceptual frameworks, and key debates in black studies. Interrogation of how race structures notions of identity and meaning of blackness in relation to class, gender, and sexuality; essential role of African people in development of capitalism, liberalism, and democracy; what various disciplinary lenses and epistemologies (history, literature, sociology, geography, cultural studies, political theory, philosophy, etc.) reveal about experiences of black people in modern world. Key thinkers and ideas from across humanities and social sciences are highlighted. P/NP or letter grading.

**2A. Africa and Middle East (4)** Lecture, three hours; discussion, one hour. Exploration of historical connections between Africa and Middle East as concepts, geographic expressions, homelands, and sites of diaspora. Examination of changing definitions and connections between Africa and Middle East from ancient world until present. Students learn how concepts have changed and are constantly changing over time. Study of how Africa and Middle East fit into alternative concepts such as ancient world, Islamic world, Muslim world, or Third World. Examination of legacies of earlier trade networks, particularly slave trade, on these regions. Examination of role countries like Egypt, situation on African continent but considered Middle Eastern, play in African-Arab or African/Middle Eastern culture. In-depth exploration of how European imperialism impacted these worlds, and how process of decolonization united them. Examination of processes of immigration and emigration across these regions. P/NP or letter grading.

**2B. Race and U.S. Military Intervention in Africa (5)** Lecture, three hours; discussion, one hour. Survey of U.S. security policy toward Africa from Cold War to present. Emphasis on ways that notions of racial hierarchy have influenced U.S. strategic priorities, threat assessments, and military initiatives throughout Africa. Special attention to U.S. covert operations and security alliances in Africa. Examination of impact of U.S. security policies on peace, conflict, and governance in Africa. Focus on change and continuity in Black transnational responses to U.S. security initiatives in Africa, particularly during Cold War and War on Terror. P/NP or letter grading.

**2C. Black Folks Kung Fu Fightin': Black America, Martial Arts, and Popular Culture (5)** Lecture, three hours; discussion, one hour. Exploration of longer history of Black Americans and their relationship to martial arts; who some of key players are; how Black folks' engagement with martial arts has been represented in popular culture; connections of race, class, and gender through martial arts. Analysis of history of martial arts in Black America from post-World War II era to present. Using books and articles, movies and television shows, and other popular cultural venues, students develop critical analytical skills to understand how race, gender, expressive culture, and martial arts operate together to form understanding of Black American experience. P/NP or letter grading.

**5. Social Organization of Black Communities (5)** (Same as Sociology M5.) Lecture, four hours; discussion, one hour; field trips. Analysis and interpretation of social organization of black communities, with focus on origins and development of black communities, competing theories and research findings, defining characteristics and contemporary issues. Letter grading.

**6. Trends in Black Intellectual Thought (5)** Lecture, three hours; discussion, one hour. Overview of major intellectual trends that have shaped ways in which Afro-American thinkers have interpreted experiences of blacks in U.S., drawing from such fields as history, philosophy, and literature. Letter grading.

**7A. Elementary Yoruba (4)** (Same as International and Area Studies M7A.) Lecture, five hours. Course M7A is requisite to M7B, which is requisite to M7C. Introduction to Yoruba, one of major languages of West Africa, which is spoken widely throughout southwest Nigeria, Benin, and Togo. Coverage of basic Yoruba grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**7B. Elementary Yoruba (4)** (Same as International and Area Studies M7B.) Lecture, five hours. Requisite: course M7A. Introduction to Yoruba, one of major languages of West Africa, which is spoken widely throughout southwest Nigeria, Benin, and Togo. Coverage of basic Yoruba grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**7C. Elementary Yoruba (4)** (Same as International and Area Studies M7C.) Lecture, five hours. Requisite: course M7B. Introduction to Yoruba, one of major languages of West Africa, which is spoken widely throughout southwest Nigeria, Benin, and Togo. Coverage of basic Yoruba grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**8A. Elementary Tigrinya (4)** (Same as International and Area Studies M8A.) Lecture, five hours. Course M8A is requisite to M8B, which is requisite to M8C. Introduction to Tigrinya, a language spoken in the Horn of Africa, in Eritrea and Ethiopia. Coverage of basic Tigrinya grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**8B. Elementary Tigrinya (4)** (Same as International and Area Studies M8B.) Lecture, five hours. Requisite: course M8A. Introduction to Tigrinya, a language spoken in the Horn of Africa, in Eritrea and Ethiopia. Coverage of basic Tigrinya grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**9A. Elementary Amharic (4)** (Same as International and Area Studies M6A.) Lecture, five hours. Course M9A is requisite to M9B, which is requisite to M9C. Introduction to Amharic, Semitic language that is official language of Ethiopia. Coverage of basic Amharic grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**9B. Elementary Amharic (4)** (Same as International and Area Studies M6B.) Lecture, five hours. Requisite: course M9A. Introduction to Amharic, Semitic language that is official language of Ethiopia. Coverage of basic Amharic grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**9C. Elementary Amharic (4)** (Same as International and Area Studies M6C.) Lecture, five hours. Requisite: course M9B. Introduction to Amharic, Semitic language that is official language of Ethiopia. Coverage of basic Amharic grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**10A. History of Africa to 1800 (5)** (Same as History M10A.) Lecture, three hours; discussion, one hour. Exploration of development of African societies from earliest times to late 18th century. P/NP or letter grading.

**18. Leadership and Student-Initiated Retention (2)** (Same as American Indian Studies M18, Asian American Studies M18, and Chicana/o and Central American Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M118. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**96W. Variable Topics in Black Studies (5)** Seminar, two hours. Enforced requisite: English Composition 3. Provides students with comprehensive knowledge on a select topic in African American studies and the African diaspora. Topics align with the instructor research interest covering the arts, humanities, and social sciences, as well as other areas in the life sciences, public health, and physical sciences (i.e., environmental sustainability, climate justice, etc.). Student critical thinking is challenged by the written canon, while strengthening their written communication skills on a particular topic in the African American Studies major areas—cultural production, political economy, and power and ideology. Satisfies Writing II requirement. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good

academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**M102. Culture, Media, and Los Angeles (6)** (Same as Asian American Studies M160 and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

**103A. African American Theater History: Slavery to Mid-1800s (4)** (Same as Theater M103A.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from slavery to mid-1800s. Letter grading.

**103B. African American Theater History: Minstrel Stage to Rise of American Musical (4)** (Same as Theater M103B.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from minstrel stage to rise of American musical. Letter grading.

**103E. Modern African American Drama: Harlem Renaissance to Black Arts Movement (4)** (Same as Theater M103E.) Lecture, three hours. Survey and examination of African American plays from 1920s until birth of modern civil rights era. Examination of sociohistorical context out of which plays were created and critical essays that illustrate development of African American playwrights and their significant involvement in creation of diversified American theatrical tradition. Letter grading.

**103J. Contemporary Black Theater: Modern Civil Rights Era to Black Lives Matter and Beyond (4)** (Same as Theater M103J.) Lecture, three hours. Examination of Black theater from Black Arts Movement of 1960s until today. Exploration of social and historical implications of work, and aesthetic experimentation of contemporary African American playwrights and movements. Letter grading.

**104A. Early African American Literature (5)** (Same as English M104A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literature from 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, Frances Harper, Frederick Douglass, Harriet Jacobs, Charles Chesnut, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

**104B. African American Literature from Harlem Renaissance to 1960s (5)** (Same as English M104B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of 20th-century African American literature from New Negro Movement of post-World War I period to 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, Gwendolyn Brooks, and Ralph Ellison. P/NP or letter grading.

**104C. African American Literature of 1960s and 1970s (5)** (Same as English M104C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literary expression from late 1950s through 1970s. Topics include rise of Black Arts Movement of 1960s and emergence of black women's writing in early 1970s, with focus on authors such as Lorraine Hansberry, Amiri Baraka, Nikki Giovanni, Alice Walker, Toni Morrison, Ishmael Reed, Audre Lorde, Paule Marshall, and Ernest Gaines. P/NP or letter grading.

**104D. Contemporary African American Literature (5)** (Same as English M104D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of African American literature from 1980s to present covering range of genres, with emphasis on diversity of perspectives and styles that have emerged over past 30 years or so. Authors may include Toni Morrison, August Wilson, Octavia Butler, Anna Deavere Smith, June Jordan, Charles Johnson, and Rita Dove. P/NP or letter grading.

**104E. Topics in African American Literature and Culture (5)** (Same as English M104E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Variable topics lecture course that provides opportunity to cover African American literature from wide range of theoretical, historical, format, and thematic perspectives. Topics may include African American autobiography, 20th-century African American litera-

ture and film, black diaspora literature, postmodern African American fiction, Afro-Futurism, and African American satire. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105A. Ideology and Black Consciousness (4)** Lecture, three hours; discussion, one hour. How do we know what we know? Why do we think what we think? Where does our knowledge of self come from? Introductory set of theoretical tools to begin to answer such questions of consciousness, especially as they concern status of Black people in contemporary racial-economic context of U.S. and elsewhere in African diaspora. Drawing on interdisciplinary Black studies scholarship of range of writers that may include Ida B. Wells, Carter G. Woodson, Claudia Jones, W.E.B. Du Bois, Ngugi wa Thiong'o, Steve Biko, Frantz Fanon, Walter Rodney, George Jackson, Angela Davis, Jacob H. Carruthers, Stuart Hall, and Sylvia Wynter, to understand function of representation, language, and ideology in creation of social meaning and role of literature, media, education, and popular culture in organization of Black consciousness and exercise of power. P/NP or letter grading.

**105B. Issues in Pan-African Biography and Autobiography (4)** Seminar, four hours. Introduction of history of political philosophy of Pan-Africanism from its origins in 19th century. Critical reading of biographical and autobiographic texts to deepen understanding of major themes and critiques of Pan-African thought, including those of race and racial formation, gender and sexuality, capitalism and labor exploitation, and nationalism and state repression. Application of history and critical readings to students' own lives and family history through researching and writing short autobiographical text. Students gain experience in conducting interviews and oral histories and genealogical and archival research. P/NP or letter grading.

**105C. Africa, African Americans, and History of Capitalism (4)** Lecture, three hours; discussion, one hour. Examination of role people of African descent have had in history and political economy of capitalism since its origins in institutions of slavery and transatlantic trade. Addresses relationship between capitalism and slavery, and issues including incorporation of free Black labor into post-slavery regimes of capital accumulation; debt, underdevelopment, and Black reparations; impact of emancipation on imperialism in Africa; role of land, labor, and resources in history of colonization; Black labor migration in early-20th-century U.S.; Fordism and Black worker; ideas of worker self-management as Black critique of capitalism; neocolonialism and reorganization of capital accumulation in Caribbean and Africa; and Reconstitution of race under neoliberalism. P/NP or letter grading.

**105D. African American-Caribbean Relations: Difference, Solidarity, and Empire (4)** Lecture, three hours; discussion, one hour. Examination of history and politics of relations between Black America and Caribbean from Haitian Revolution of 1804 to U.S. Intervention of Grenada of 1983. Discussion of themes, episodes, and flash points may include significance of Haiti within African American thought, 19th-century Black migration to Caribbean, Caribbean immigration and Harlem Renaissance, Black views of U.S. occupation of Haiti and Trinidad, and impact of Caribbean thinkers on U.S. Civil Rights and Black Power movements. P/NP or letter grading.

**106A. Africa and World (4)** Lecture, four hours; discussion, one hour. Introduction to historical and contemporary Africa, with focus on modern history, politics, and culture. Survey of key issues impacting Africa today and in future—from political discussions on independence, geopolitics of aid and development, cultural transmission and relationship with African diaspora, modern movement and migration, and debates on racial and geographic divide between Arab north and south of Sahara. P/NP or letter grading.

**106B. Militarism, International Security, and African American Political Thought (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of trends in African American political thought regarding origins of war and peace in international relations from World War I to present. African American support for and resistance to U.S. militarism and military policy central to this inquiry. Emphasis on African American appraisals of justness of America's wars, and nexus between U.S. military conflicts abroad and U.S. racial politics at home. Special attention to shifting African American assessments of prospects and prerequisites for peaceful and equitable relations within international community. P/NP or letter grading.

**107. Cultural History of Rap (5)** (Same as Ethnomusicology M119 and Global Jazz Studies M119.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

**108. Jazz and Political Imagination (4)** Lecture, three hours; discussion, one hour. How has jazz come to symbolize so many different political tendencies—freedom and democratic values, threat to order and civil society, possibility of integration and racial harmony, Black liberation and nationalism, conservatism, surrealism, socialism, etc., throughout 20th century? What about jazz enables people to read their political aspirations and hopes in what is primarily instrumental, improvised music? Exploration of history of ideas about



jazz, specifically how writers, activists, movements, and musicians understood politics of jazz. Exploration of political imaginations—here and abroad—in particular in jazz and question of freedom—social freedom, political freedom, cultural, and artistic freedom. P/NP or letter grading.

**109. Women in Jazz (4)** (Same as Ethnomusicology M109, Gender Studies M109, and Global Jazz Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

**CM110. Bibliography and Research Methods in Rap Music/Hip-Hop Studies (4)** (Same as Ethnomusicology CM120.) Seminar, three hours. Requisite: course M107. Designed for juniors/seniors conducting research on hip-hop in preparation for capstone projects such as honors or senior thesis. In-depth examination of intellectual history of rap music/hip-hop studies scholarship. Examination of readings related to intellectual history of rap music scholarship and allied traditions (including breakdance and graffiti). Exploration of broad range of research methods and archival/library centers specific to hip-hop studies. Concurrently scheduled with course CM210. Letter grading.

**110A. Race, Science, and Society (4)** Lecture, three hours; discussion, one hour. Idea that races reflect inherent biological differences between social groups has been prominent aspect of European and American thought since at least Enlightenment. While there have been moments of refuting this way of thinking—most notably, social constructionist thesis emerging as dominant framework in aftermath of WWII—fixed biological conceptions of race haunt contemporary bio-medical research, where race continues to be measured at nearly every scale of human biology: from molecules up to intelligence and health. Exploration of reasons for this persistence through engagement with theory and in-depth analysis of biological research. Close attention to relationship between developments within American history and production of scientific knowledge about race; for it is in this relationship that perils and promise of science reveal themselves. P/NP or letter grading.

**110B. Reproducing While Black: Politics of Black Reproduction (4)** Seminar, three hours. Interdisciplinary exploration of experiences of Black reproduction, globally. Investigation of stakes of Black reproduction as well as strategies of resistance and strategies for securing healthy and sustainable reproduction. P/NP or letter grading.

**110C. Black Health Matters: Wellness, Health, and Self-Care (4)** Seminar, three hours. Exploration, cultivation, and active engagement in modes of self-care that are accessible and drawn from experiences coming from Black diaspora. Focus on reclaiming of healing and self-care practices, ancestral practices, listening to body, and enacting healing justice. P/NP or letter grading.

**CM110D. Posthumans (4)** (Same as Society and Genetics M110D.) Seminar, three hours. Denaturalization of concept of human and with it uniquely western philosophical commitments that sustain imagined boundaries between human and non-human, modern and pre-modern, male and female, abled and disabled, chosen and condemned, indigenous and European, African and whiteness, religious and secular. Exploration of formation of human throughout long course of Euro-American intellectual history and its contemporary posthuman formations. Study is informed by range of theoretical work that covers meaning of modernity, liberalism, inter-species relationships, critical race theory, conceptual problems in evolutionary biology, and public health. Concurrently scheduled with course C210D. P/NP or letter grading.

**111. Ellingtonia (4)** (Same as Ethnomusicology M111 and Global Jazz Studies M111.) Lecture, three hours. Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as Ellingtonia, is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

**112A. Sunken Place: Racism, Survival, and Black Horror Aesthetic (4)** Lecture, three hours; discussion, one hour. Inspired by Jordan Peele's horror film *Get Out* (2017), use of horror films and fiction of artists like Peele, George A. Romero, Kasi Lemmons, Tananarive Due, and Toni Morrison—as well as short films by artists like activist Bree Newsome—to examine scope, role, and impact of Black horror, subset of horror genre that binds elements of history, sexuality, sociology, politics, African-based religions such as Vodun/Vodou, and morality tales to create mirror through which to view true-life struggles facing black population. P/NP or letter grading.

**112B. Aboard Mothership: Introduction to Afrofuturism (4)** Lecture, three hours; discussion, one hour. Anchored by Ryan Coogler's historic Afrofuturist film *Black Panther*, use of speculative fiction of Octavia E. Butler, Samuel R. Delany, Tananarive Due, Nnedi Okorafor, Steven Barnes, and other writers—as well as short films by Kenyan filmmaker Wanuri Kahiu and British/African filmmaker Kibwe Tavares and others—to examine scope and impact

of Afrofuturism, growing international cultural movement binding elements of history, sociology, technology, magical realism, politics, and futurism to create alternate reality for children of African diaspora. Exploration of influence of music of George Clinton and Parliament-Funkadelic (Mothership Connection), Sun-Ra, Janelle Monáe, and others. P/NP or letter grading.

**CM113B. Legislative Theater for Race and Gender Justice (5)** (Same as World Arts and Cultures CM113B.) Lecture, three hours; discussion, one hour (when scheduled). Exploration and application of range of interactive methods and arts-based strategies with participants from UCLA and broader Los Angeles community in order to research and influence public policy and legislative change. Students and campus partners create and perform legislative theater addressing issues of race, gender, and criminal justice system. Critical texts, collaborative work, and creative methods are used to engage perspectives on justice. Analysis of diverse and growing body of work on systems of justice through research, writing, workshops, performances, and critiques of own original writings and performances developed in response to visiting scholars and community partners. Concurrently scheduled with course CM213B. P/NP or letter grading.

**113D. Spoken Word Workshop: Creative Writing and Performance Practicum (4)** (Same as World Arts and Cultures M113D.) Lecture, three hours. Enrollment by consent of instructor. Shaped by, and consistently inspiring, broader movements for social and political change, practice of spoken word today provides creative outlets for writers and performing artists worldwide by resisting and remixing elements of traditional verse, participatory theater, and popular culture. To develop writing and performance skills, and to deeply understand selection of poets and performing artists who have shaped spoken word as known today, investigation of aesthetics and political movements of their time through critical essays and poetry from range of influential movements. P/NP or letter grading.

**CM113XP. Narratives of Justice: Disrupting School-to-Prison Pipeline—Arts, Activism, and Agency (4)** (Formerly numbered CM113.) (Same as Education CM125XP) Lecture, four hours; discussion, one hour. Exploration of policies and practices, art and activism, and other forms of agency engaging school-to-prison pipeline. Concurrently scheduled with course CM213XP. P/NP or letter grading.

**114C. African American Political Thought (4)** (Same as Labor Studies M114C and Political Science M180A.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

**115. We Gone Be Alright: Developing Next Generation of Black Organizers (4)** (Same as Labor Studies M115.) Seminar, four hours. Learning from and building on Black labor and community organizing traditions, students develop skills and mindsets needed for transformative leadership. Students connect with leaders of community organizations, student organizers, and prepare for more intensive community-based work. P/NP or letter grading.

**116A. African American Musical Heritage (5)** (Formerly numbered M12A.) (Same as Ethnomusicology M110A and Global Jazz Studies M110A.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. P/NP or letter grading.

**116B. African American Musical Heritage (5)** (Formerly numbered M12B.) (Same as Ethnomusicology M110B and Global Jazz Studies M110B.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions. P/NP or letter grading.

**118. Student-Initiated Retention and Outreach Issues in Higher Education (4)** (Same as American Indian Studies M118, Asian American Studies M168, and Chicana/o and Central American Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

**120. Race, Inequality, and Public Policy (4)** (Same as Public Policy M120.) Lecture, three hours; discussion, one hour. Background in economics, sociology, or urban studies preferred but not required. Survey course to examine major debates and current controversies concerning public policy responses to social problems in urban America. Letter grading.

**121. Afro-Indigenous History: from Enslavement and Settlement to Black Lives Matter and Indigenous Sovereignty (4)** (Same as American Indian Studies M123.) Lecture, four hours; discussion, one hour. Examination of how race was developed through experiences of African-descended peoples and indigenous people in U.S. and beyond. Examination of key episodes in history. Using articles, books, documentaries, and contemporary popular culture, examination of relationship between people of African descent and indigenous people. Study takes broad, thematic approach. Topics include first encounters in Americas and ideologies that led to enslavement and dispossession; period of enslavement and indigenous removal in 19th century; mid-20th-century social movements; and contemporary manifestations, especially solidarity shown between Black Lives Matter and Dakota Access Pipeline protesters. P/NP or letter grading.

**123. Global Hip Hop (4)** (Same as Ethnomusicology M123.) Lecture, four hours. Overview of the emergence and development of rap music throughout the world. Exploration of the development of hip-hop culture in the U.S., and the historical development of the genre in various global locales. Exploration moves through significant regions in hip-hop culture throughout the world, providing histories and genealogies of geographical musical areas. Discussion throughout of more abstract concepts pertinent to rap music such as the emergence of a global hip-hop culture, race as it pertains in rap music, post-regionalism, gender and sexuality in rap music, and the relationship between rap and protest. Letter grading.

**124. Comparative Racialization and Indigeneity (4)** (Same as Asian American Studies M124.) Lecture, three hours. Examination of processes and histories of racialization and colonization in U.S. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

**129B. Participatory Action Research on Youth Organizing for Racial Justice (4)** (Same as American Indian Studies M129, Asian American Studies M128, Chicana/o and Central American Studies M129B, and Public Affairs M122.) Lecture, four hours. Students are trained to conduct participatory action research on grassroots youth organizing across California. Students gain historical and theoretical background on multi-racial and inclusive organizing. Students learn how to collect and analyze data pertaining to pressing organizing issues. Study and critical analysis of youth organizing strategies. Weekly training modules on data collection and grassroots organizing strategies that prepare students for internships in grassroots youth organizing groups serving Asian American, Black, Latinx, and Native American communities. P/NP or letter grading.

**CM135A. African American Art before 1900 (4)** (Same as Art History CM135A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM235A. P/NP or letter grading.

**CM135B. African American Art, 1900 to 1963 (4)** (Same as Art History CM135B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM235B. P/NP or letter grading.

**140. Radical Black Imaginaries: Politics, Identity, and Struggle (4)** Lecture, four hours. Exploration of some more powerful visions for freedom, liberation, and racial justice in African diasporic world, with focus on political struggles, intellectual movements, and creative expressions that formed part of radical black imagination during last century. Following of black diasporic citizens from Accra to Harlem to Havana as they struggled for freedom within and beyond movements against colonialism and racial oppression, for Pan-Africanism, feminism, and Negritude, and through utopian art forms like Afro-Futurism. Consideration of how black activists, artists, and intellectuals in various parts of globe have worked to envision and enact real possibilities for sovereignty and liberation both at home and abroad. Letter grading.

**141. African American Women's History (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M141.) Lecture, four hours. Historical examination of black women's experiences in U.S. from antebellum era to present. By situating black women's experiences within major historical transitions in American history, exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover black women's historical lives and what are challenges to such discoveries? Examination of black women's individual and collective struggles for freedom from racism, sexism, and heteropatriarchy, as well as black women's participation in and challenge to social movements, including suffrage,

women's liberation, civil rights, and black power. Investigation of black women's intellectual history, including their cultural productions. Letter grading.

**142. Race, Gender, and Punishment (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M142.) Seminar, four hours. Interdisciplinary examination of historical and contemporary development of modern prison industrial complex in U.S., with attention to impact of prison industrial complex on immigrants, including undocumented residents, homeless populations, women, African Americans, and transgender nonconforming and lesbian, gay, bisexual, and transgender communities. Why does U.S. have largest prison population in world? What historical conditions and ideologies gave rise to this massive explosion in U.S. prisoner population? What policies have fueled mass imprisonment? Who is imprisoned? How have politicians used imprisonment as response to economic transformations and perceived social disorders? How is current crisis analogous to or distinct from regimes of racialized punishment in prior historical moments? Letter grading.

**144. Ethnic Politics: African American Politics (4)** (Same as Political Science M182.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level political science course or one upper-division course on race or ethnicity from history, psychology, or sociology. Requisite: Political Science 40. Designed for juniors/seniors. Emphasis on dynamics of minority group politics in U.S., touching on conditions facing racial and ethnic groups, with black Americans being primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills. P/NP or letter grading.

**148. Politics of Struggle: Race, Solidarity, and Resistance (4)** (Same as Chicana/o and Central American Studies M148.) Lecture, four hours. Examination of Chicana/Chicano intergroup relations and political coalitions with other Latinos, African Americans, Asian and Pacific Islanders, and Euro-Americans, especially in communities undergoing rapid changes in demographic composition. Letter grading.

**150D. Recent African American Urban History: Funk Music and Politics of Black Popular Culture (4)** (Same as History M150D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of musical genre known as funk that emerged in its popular form during late 1960s and reached popular high point, in black culture, during 1970s. Funk, fusion of gospel, blues, jazz, rhythm and blues, soul, rock, and many other musical styles, offers students unique window into recent African American history. P/NP or letter grading.

**154C. Black Experience in Latin America and Caribbean I (4)** (Same as Political Science M184A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Culture, history, politics, and identity of African Americans in Spanish and Lusophone Caribbean, South America, and Central America. Exploration of issues of identity in context of Afro/Latino migration to U.S. P/NP or letter grading.

**154D. Black Experience in Latin America and Caribbean II (4)** (Same as Political Science M184B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of issues regarding race and ethnicity in Latin America, with emphasis on comparisons to U.S. and within Latin America. Covers populations of African and indigenous origins, with emphasis on former. P/NP or letter grading.

**155. Afro-Latina/o Experience(s) in U.S. (4)** (Same as Chicana/o and Central American Studies M143B.) Lecture, four hours; discussion, one hour (when scheduled). Focus on Afro-Latina/o experience in U.S. through exploration of its historical roots and contemporary forms. How colorism in Latin America and U.S. influence Afro-Latina/o identity. Regional differences and different types of Afro-Latina/os that include Blaxicans, Nuyoricans, Afro-Cubans, and others are taken into account. Discussion of themes that include feminism, politics, culture, music, and identities in order to obtain comprehensive picture of Afro-Latina/os in U.S. yesterday and today. P/NP or letter grading.

**158A. Comparative Slavery Systems (4)** (Same as History M150A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of slavery experiences in various New World slave societies, with emphasis on outlining similarities and differences among legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies. P/NP or letter grading.

**158B. Introduction to Afro-American History (4)** (Same as History M150B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieus. P/NP or letter grading.

**158C. Introduction to Afro-American History (4)** (Same as History M150C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieus. P/NP or letter grading.

**158E. African American Nationalism in First Half of 20th Century (4)** (Same as History M150E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical examination of African American search in first half of 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

**159P. Constructing Race (4)** (Same as Anthropology M144P and Asian American Studies M169.) Lecture, three hours; discussion, one hour (when scheduled). Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

**164. Afro-American Experience in U.S. (4)** (Same as Anthropology M144Q.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in U.S. by presenting comparative and diachronic perspective on Afro-American experience in New World. Emphasis on utilization of anthropological concepts and methods in understanding origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

**165. Sociology of Race and Labor (4)** (Same as Labor Studies M165 and Sociology M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

**CM166. Future of Work in Decarcerated California (4)** (Same as Labor Studies M124.) Seminar, three hours. Limited to students in Community Scholars program. Exploration of scope of employment and nature of jobs that are attached to current system of mass incarceration in California, with focus on Los Angeles county. Study of history and evolution of carceral system and its relationship to oppression of Black people, poor, and other stigmatized groups. Exploration of history of employment discrimination against Black workers and how successful demand for unionized government jobs (public sector work) evolved as anti-discrimination remedy. Investigation of work, especially by people of color, in existing carceral regimes, and its impact on individual worker wellness and community well-being. Examination of tension between racial justice agendas to decarcerate California and those to prevent downward mobility of workers of color recruited by state to carry out failed policies of war on drugs. Concurrently scheduled with course C266. P/NP or letter grading.

**CM166B. Future of Work in Decarcerated California II: Applied Research and Policy Analysis for Implementation of Justice Transformation (4)** (Same as Labor Studies M124B.) Seminar, three hours. Limited to students in Community Scholars program. Prerequisite: course CM166. Second course in two-quarter participatory action research program that partners students with community-based change agents. Study involves project-based learning in groups made up of undergraduate and graduate students and community members. Students contribute to development of collective policy platform that centers recommendations of formerly employed and formerly incarcerated people in broader community vision for transitioning to decarcerated workforce. Concurrently scheduled with course C266B. P/NP or letter grading.

**167. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers (4)** (Same as Asian American Studies M163, Chicana/o and Central American Studies M130, and Labor Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multi-ethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

**170A. Diasporic Nonfiction: Media Engagements with Memory and Displacement I (4)** (Same as Chicana/o and Central American Studies M140A.) Seminar, three hours. Video production course, with emphasis on autobiographical, critical, and performance-based modes of nonfiction media making, drawing on practices of diasporic filmmakers who have grappled with suppressed collective memories of displacement, trauma, exile, and migration.

What does it mean to make videos about memory in places where direct cues to remembering cannot be seen? Introduction to concepts from films and readings. Production assignments and screenings, with focus on questions of how to represent history, memory, family dynamics, and lived experience according to perspectives and interests of diasporic subjects. In Progress grading (credit to be given only on completion of course M170B).

**170B. Diasporic Nonfiction: Media Engagements with Memory and Displacement II (4)** (Same as Chicana/o and Central American Studies M140B.) Seminar, three hours. Enforced prerequisite: course M170A. Students complete 20- to 30-minute video projects about issues or experiences central to everyday lives of collectives of diasporic peoples. They learn to propose, record, edit, and distribute one socially engaged nonfiction video and draw on their experiences from course M170A in writing voiceover, choreographing dances, designing public performances, interviewing, and recording everyday life. P/NP or letter grading.

**172. Afro-American Woman in U.S. (4)** (Same as Gender Studies M172 and Psychology M172.) Lecture, two and one half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

**173. Nonviolence and Social Movements (4)** (Same as Chicana/o and Central American Studies M173 and Labor Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

**174. Intra-racial Differences in 20th-Century Black America (4)** Lecture, four hours. Discussion of evolution of black divergence within African American community by focusing on evolution of differences—specifically class differences—that have minimized black progress when compared with other races and cultures like Asians and Jews. Examination of origins and plight of lower-class blacks in stark juxtaposition with black leadership and African Americans occupying higher socioeconomic levels. Letter grading.

**175. Racial and Ethnic Disparities in Healthcare (5)** Lecture, four hours. Designed for students who are seeking to become healthcare professionals so they understand importance of how race and ethnicity impact delivery of healthcare. Focus on need to increase diversity of health professions workforce as means to address health disparities. Letter grading.

**176. Race, Racism, and Law (4)** Lecture, four hours; discussion, one hour. Throughout American history, race relations have been inextricably linked to law. Both perpetuation of racism and struggle against it have involved various legal institutions, especially U.S. Supreme Court. Lawyers on all sides have often played pivotal roles in establishing legal standards defining political, economic, social, and psychological status of African Americans (and other racial and ethnic minorities). Historical overview and in-depth examination of selected major highlights of these legal developments, including Constitutional sources of racism, legal foundations establishing and eliminating slavery, major Supreme Court decisions before and during civil rights era, and contemporary legal retreat from civil rights protections. Examination of legal processes and legal profession in broader historical and political context. Letter grading.

**177. African Americans in Higher Education (4)** Lecture, four hours. Discussion and exploration of challenges facing black students at predominantly white institutions (PWIs), ways in which Proposition 209 has affected black student community, spaces on and off campus that empower students, and issues of access and equity in higher education. Critical discussions about student experiences/concerns/challenges at UCLA, addressing specific strategies for success, and notions of empowerment that provide context for students from underrepresented backgrounds at predominantly white universities. Letter grading.

**178. Sociology of Caribbean (4)** (Same as Sociology M178.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Historical sociology of Caribbean, with emphasis on colonialism and decolonization, development and underdevelopment, race-making institutions and evolution of race relations, nationalism and migration. P/NP or letter grading.

**179A. Topics in African American Literature (5)** (Same as English M191A.) Seminar, three or four hours. Enforced prerequisite: English Composition 3 or 3H. Variable specialized studies course in African American literature. Topics may include Harlem Renaissance, African American literature in Nadir, black



women's writing, contemporary African American fiction, African American poetry. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**184A. Research in Black Life, Institutions, and Culture (4)** Seminar, three hours. Interdisciplinary overview of Black studies research perspectives and research methods. P/NP or letter grading.

**184B. Research in Black Life, Institutions, and Culture II (4)** Lecture, three hours; discussion, one hour. Limited to students enrolled in Bunche fellows research program. Continuation of interdisciplinary overview of Black studies research perspectives and research methods. Survey of Black studies research perspectives, methods, and findings. Covers voluminous, complex materials in relatively short period of time. Extensive reading, critically analysis of materials, and application of what is learned in research projects. Students are expected to present thoughtful, detailed, creative critical analyses of texts and ideas in both written and oral communication. Students share and present drafts from ongoing research projects as they incorporate constructive feedback. Collaborative group work and participation in a shared, supportive learning community. P/NP or letter grading.

**184C. Research in Black Life, Institutions and Culture III: Comparative Black Studies Research Perspectives and Methods (4)** Seminar, three hours. Limited to students enrolled in Bunche fellows research program. Covers voluminous, complex materials in relatively short period of time. Operates as like graduate-level, professional seminar, requiring students to critically assess materials and determine which research perspectives, methods, and findings relate most directly to their own research projects. Students are expected to present thoughtful, detailed, creative critical analyses of texts and ideas in written and oral communication. They are expected to share from their ongoing research projects in order to benefit from constructive, class feedback. Collaborative, group work is essential as we build supportive learning community. P/NP or letter grading.

**188A. Special Courses in African American Studies (4)** Lecture, three hours; discussion, one hour. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**188B. Race and Public Policy (5)** Seminar, three hours. Exploration of range of public policies concerned with promoting civil rights of racial minorities, with focus on education, voting, and housing. Why did such policies initially arise? How have they since developed? How effective have they been in closing racial gap? Provides students with basic foundation of knowledge for thinking through contemporary debates surrounding policies that seek to redress racial discrimination in U.S. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**C191. Variable Topics Research Seminars: Afro-American Studies (4)** Seminar, four hours. Research seminar on selected topics in Afro-American studies. Reading, discussion, and development of culminating project. May be repeated for credit. Concurrently scheduled with course C291. Letter grading.

**194A. Language, Literacy, and Human Development Research Group Seminars (5)** (Same as Education M131A.) Seminar, three hours; laboratory, two hours (when scheduled). Requisite: Education 180. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and language. Letter grading.

**194B. Culture, Gender, and Human Development Research Group Seminars (5)** (Same as Education M131B.) Seminar, three hours; laboratory, two hours (when scheduled). Requisite: Education 180. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and gender. Letter grading.

**194C. Culture, Communications, and Human Development Research Group Seminars (5)** (Same as Education M131C.) Seminar, three hours; laboratory, two hours (when scheduled). Requisite: Education 180. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and technologies. Letter grading.

**195. Community or Corporate Internships in Afro-American Studies (4)** Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to junior/senior majors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. Eight units may be applied toward major requirements. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Comparative Approaches to Community and Corporate Internships (4)** (Same as American Indian Studies M195CE, Asian American Studies M195CE, Chicana/o and Central American Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

**196. Research Apprenticeship in Afro-American Studies (4)** Tutorial, three hours. Limited to juniors/seniors. Entry-level research apprenticeship under guidance of faculty mentor affiliated with Afro-American Studies major or minor. Short-term research project culminating in term paper in African American studies or related field required. Research may be in part or totally in relation to faculty member's research. May be repeated for credit. Individual contract required. Letter grading.

**197. Individual Studies in Afro-American Studies (2 to 8)** Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Afro-American Studies (2 to 4)** (Formerly numbered 198.) Tutorial, four hours. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under the direct supervision of approved faculty member for students to extend and develop their knowledge on a select topic in African American studies. Progress is reported to undergraduate adviser for each term. May be repeated for credit. Individual contract is required. In-progress grading (credit to be given only on completion of courses 198B and 198C).

**198B. Honors Research in Afro-American Studies (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under the direct supervision of approved faculty member for students to extend and develop their knowledge on a select topic in African American studies. Progress is reported to undergraduate adviser for each term. May be repeated for credit. Individual contract is required. In Progress grading (credit to be given only on completion of course 198C).

**198C. Honors Research in Afro-American Studies (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under the direct supervision of approved faculty member for students to extend and develop their knowledge on a select topic in African American studies. Progress is reported to undergraduate adviser for each term. May be repeated for credit. Individual contract is required. Letter grading.

**199. Directed Research or Senior Project in Afro-American Studies. (2 to 4)** Tutorial, to be arranged with faculty member who directs study. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation of large project under guidance of faculty mentor. Culminating paper or project required. Eight units may be applied toward major requirements. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

## Graduate

**M200A. Advanced Historiography: African American (4)** (Same as History M200V.) Seminar, three hours. May be repeated for credit. S/U or letter grading.

**200B. Political Economy of Race (4)** (Same as History M256C.) Seminar, four hours. Examination of historiography of history of capitalism and history of African diaspora, especially in their overlapping concerns with organization of race and racial states in contemporary world, development of modern imperialism—and emergence of global Black resistance to both. Themes and topics considered may include capitalism and question of slavery; law, regulations, and legal pluralism in organization of markets and nations; uneven development and nature of Black sovereignty; history of regimes of gender and sexuality in social and capital reproduction; modalities of capital accumulation and production of space; racial violence and territorial expansion; emancipation and growth of empire; history of finance capital and its discourses of debt; capitalism and history of anti-Blackness; racism, neoliberalism, and governmentality; and emergence and content of Black radical tradition and its critiques of racial capitalism. S/U or letter grading.

**200C. Black Families and Relationships (4)** (Same as Sociology M262.) Seminar, three hours. Evaluation of social, cultural, and historical forces that affect socialization, stability, and interaction in black intimate relationships, beginning with theoretical framework from black feminism to analysis of economic and other expectations for partners in cohabiting and other types of unions. Examination of family life for both middle-class and low-income populations. Exploration of notions of black sexuality, including images of hyper-masculinity and femininity within black body and critical interrogation of notions of blackness and authenticity in racial identification. Contribution to greater understanding of black intimate relationships in different contexts, including lesbian and gay identities, Caribbean and other ethnic identities, and interracial intimacies. S/U or letter grading.

**200D. African American Women's History (4)** Seminar, four hours. Historical examination of black women's experiences in U.S. from antebellum era to present. Exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover black women's historical lives and what are challenges to such discoveries? Examination of black women's individual and collective struggles for freedom from racism, sexism, and heteropatriarchy as well as black women's participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. Letter grading.

**200E. Studies in Afro-American Literature (4)** (Same as English M262.) Lecture, four hours. Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on aesthetic, cultural, and social backgrounds of Afro-American writing. May be repeated for credit. S/U or letter grading.

**200G. Race, Class, and Gender: Constructing Black Womanhood and Black Manhood in America (4)** (Same as Sociology M231.) Seminar, four hours. Race, class, gender, and sexual identity are axes of stratification, identity, and experience. They are not merely identities but structural locations that are often taken for granted and rarely confronted, challenged, or contested. Many times one or more of these go unrecognized. Exploration of multiple and intersecting ways these concepts shape society, individual life chances, and daily social interactions for African Americans. Examination of race, class, and gender inequalities as individual aspects of social life. How race, class, gender, and sexual identity shape societies and individual experiences in interaction with each other. How these inequalities shape and are shaped by social institutions, including cultural institutions, economy, and family, within context of experiences of black women and black men in contemporary U.S. Letter grading.

**200H. Social Politics of Recent African American Music and Popular Culture (4)** Seminar, four hours. Predominant trend in research in African American music highlights intersection of music with social and political movements, contextual socioeconomic realities, and cultural politics of identity. Civil rights, black power, feminism, sexual revolution, and anti-war were movements that shaped and were shaped by music of their respective historical

contexts. Recent scholarship has also engaged questions pertaining to intra-African American politics of community: grappling with issues such as appropriation, economic exploitation, male privilege, and marginalization of creative artists. Examination of critical nexus between music and myriad of issues unearthed by this trend in scholarly study of black music. Letter grading.

**201A. Survey of Black Studies Research: Themes, Issues, and Concepts (4)** Seminar, three hours. Exploration of selected theoretical constructs, conceptual frameworks, and methodological approaches in discipline of African American studies. Interrogation of some of more significant debates in field as students consider how to engage and utilize these ideas—and epistemological debates around them—in their own work. Students think critically about different forms of intellectual production and scholastic inquiry in field that is now quite broad and interdisciplinary. Letter grading.

**201B. Survey of African American Studies Research Part 2: Introduction to Research Methods (4)** Seminar, three hours. Requisite: course 201A. Research methods and techniques speak to manner of collecting data and carrying out investigations. Research methodologies are groupings of procedures and practices used to illuminate and organize data and phenomena. Exploration of range of research methodologies prominent in Black/Africana studies. Students engage uses of archival research, textual analysis, oral history sources, sound analysis, digital media studies, and quantitative and qualitative approaches to data collection and interpretation. Instructor operates primarily as coordinator, arranging guest presentations and recorded lectures by departmental faculty. Letter grading.

**201C. Research Proposal Writing Seminar (4)** Seminar, three hours. Requisites: courses 201A, 201B. Designed for first-year African American Studies graduate students. Students are assisted in conceptualizing, designing, and writing research proposals. Introduction to other professional research skills which help students prepare for graduate study, academics, and/or research according to their respective areas of interest. Skills include Institutional Review Boards (IRB) or research involving human subjects; securing research grants; funding and understanding their criteria; and writing statements of purpose and personal statements as students. Demystifies thesis writing process and provides students with basic tools for writing successful and highly publishable research essay or thesis. Letter grading.

**202. Critical Theory of African Diaspora (4)** (Same as Anthropology M245.) Seminar, four hours. Introduction to variety of ideas that underlie articulation of construct of African diaspora. Structured through understanding of African diaspora as historical formation, with focus on African diaspora as distinct intellectual project. Exploration of ways scholars have conceptualized and theorized diasporic condition of black peoples. Consideration of who belongs to African diaspora community, and how this community is imaged. S/U or letter grading.

**203A. Pan-Africanism: History and Historiography, 1804-1974 (4)** Seminar, three hours. Pan-Africanism is among most contested, misunderstood, and misrepresented political theories and social movements to emerge in history of African diaspora and Black world. It is arguably also among most important, having influenced generations of Black intellectuals and activists while playing fundamental role in process of decolonization and African and Caribbean independence. Study of history and ideas of pan-African thought from its origins in 19th century to moment of its existential crisis in 1970s. S/U or letter grading.

**203B. Readings in African Political Economy (4)** Seminar, three hours. Multidisciplinary approach to study of African political economy. While grounded in discipline of history, study prepares students to actively engage with social sciences—in particular economics, political science, and anthropology. Study of Africa's economic past from initial scholarship in 1960s and 1970s on questions such as how Africa was integrated into world economy, and causes to of wealth and prosperity; to questions of governance in 1990s. S/U or letter grading.

**CM210. Bibliography and Research Methods in Rap Music/Hip-Hop Studies (4)** (Same as Ethnomusicology CM220.) Seminar, three hours. Preparation: ongoing work or preparatory research in rap music/hip-hop studies. Designed for graduate students conducting research on hip-hop in preparation for comprehensive examination preparation, and graduate research projects including master's thesis and dissertation. In-depth examination of intellectual history of rap music/hip-hop studies scholarship. Examination of readings related to intellectual history of rap music scholarship and allied traditions (including breakdance and graffiti). Exploration of broad range of research methods and archival/library centers specific to hip-hop studies. Concurrently scheduled with course CM110. Letter grading.

**C210D. Posthumans (4)** Seminar, three hours. Denaturalization of concept of human and with it uniquely western philosophical commitments that sustain imagined boundaries between human and non-human, modern and pre-modern, male and female, abled and disabled, chosen and condemned, indigenous and European, African and whiteness, religious and secular. Explo-

ration of formation of human throughout long course of Euro-American intellectual history and its contemporary posthuman formations. Study is informed by range of theoretical work that covers meaning of modernity, liberalism, inter-species relationships, critical race theory, conceptual problems in evolutionary biology, and public health. Concurrently scheduled with course CM110D. S/U or letter grading.

**211. Seminar: African American Music (4)** (Same as Ethnomusicology M211.) Seminar, three hours. Requisites: Ethnomusicology M110A, M110B. Designed for graduate students. In-depth examination of intellectual history of African American music scholarship. Intensive investigation of problems, theories, interdisciplinary methods/schools of research, and bibliography related to study of African American music. Letter grading.

**CM213B. Legislative Theater for Race and Gender Justice (5)** (Same as World Arts and Cultures CM213B.) Lecture, three hours; discussion, one hour (when scheduled). Exploration and application of range of interactive methods and arts-based strategies with participants from UCLA and broader Los Angeles community in order to research and influence public policy and legislative change. Students and campus partners create and perform legislative theater addressing issues of race, gender, and criminal justice system. Critical texts, collaborative work, and creative methods are used to engage perspectives on justice. Analysis of diverse and growing body of work on systems of justice through research, writing, workshops, performances, and critiques of own original writings and performances developed in response to visiting scholars and community partners. Concurrently scheduled with course CM113B. S/U or letter grading.

**CM213XP. Narratives of Justice: Disrupting School-to-Prison Pipeline—Arts, Activism, and Agency (4)** (Formerly numbered CM213.) (Same as Education CM229B.) Lecture, four hours; discussion, one hour. Exploration of policies and practices, art and activism, and other forms of agency engaging school-to-prison pipeline. Concurrently scheduled with course CM113XP. S/U or letter grading.

**CM235A. African American Art before 1900 (4)** (Same as Art History CM235A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM135A. S/U or letter grading.

**CM235B. African American Art, 1900 to 1963 (4)** (Same as Art History CM235B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM135B. S/U or letter grading.

**240. Assessment and Treatment of African American Families (3)** (Same as Psychiatry M240.) Seminar, two hours. Designed for graduate students. Course aids mental health professionals and trainees in evaluation and treatment of African American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form basis for supervised evaluation and case management with African American children and families. Letter grading.

**241. Special Topics in Afro-American Studies (4)** Lecture, four hours; discussion, one hour. Intensive research and study of major themes and issues in various areas of Afro-American studies. S/U or letter grading.

**256. Topics in African American Art (4)** (Same as Art History M236.) Seminar, three hours. Requisite: course CM235A or CM235B. Topics in African American art from 18th century to present. May be repeated for credit with consent of graduate adviser. S/U or letter grading.

**C266. Future of Work in Decarcerated California (4)** Seminar, three hours. Limited to students in Community Scholars program. Exploration of scope of employment and nature of jobs that are attached to current system of mass incarceration in California, with focus on Los Angeles county. Study of history and evolution of carceral system and its relationship to oppression of Black people, poor, and other stigmatized groups. Exploration of history of employment discrimination against Black workers and how successful demand for unionized government jobs (public sector work) evolved as anti-discrimination remedy. Investigation of work, especially by people of color, in existing carceral regimes, and its impact on individual worker wellness and community well-being. Examination of tension between racial justice agendas to decarcerate California and those to prevent downward mobility of workers of color recruited by state to carry out failed policies of war on drugs. Concurrently scheduled with course CM166. S/U or letter grading.

**C266B. Future of Work in Decarcerated California II: Applied Research and Policy Analysis for Implementation of Justice Transformation (4)** Seminar, three hours. Limited to students in Community Scholars program. Requisite: course C266. Second course in two-quarter participatory action research program that partners students with community-based change agents. Study involves project-based learning in groups made up of undergraduate and graduate students and community members. Students contribute to development of collective policy platform that centers recommendations of formerly employed and formerly incarcerated people in broader community vision for transitioning to decarcerated workforce. Concurrently scheduled with course CM166B. S/U or letter grading.

**270A. Survey of Afro-American Research (4)** Seminar, three hours. Overview of research methodologies in humanities and social sciences, with firsthand reports from faculty in various fields. Introduction to research in and related to Afro-American studies and application of such research. Letter grading.

**C291. Special Topics in Afro-American Studies (4)** Seminar, four hours. Research seminar on selected topics in Afro-American studies. Reading, discussion, and development of culminating project. May be repeated for credit. Concurrently scheduled with course C191. Letter grading.

**596. Directed Readings and Tutorials (4)** Tutorial, to be arranged. Provides students with umbrella under which they can pursue specialized interests from which there is insufficient demand to warrant offering formal courses. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination (4, 8)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward MA course requirements. S/U grading.

**598. Research for and Preparation of MA Thesis (4, 8)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward MA course requirements. S/U grading.



# African Studies

## African Studies Courses

### Graduate

**201A. Africa and Disciplines (4)** Seminar, four hours. Major intellectual trends and currents in development of African studies. Emphasis on appreciation of multidisciplinary background of African studies and relevant interpretive strategies. Central questions, critical issues, and current problems affecting Africa. Content varies each year. Letter grading.

**201B. Africa and Professions (4)** Seminar, three hours. Exploration of key contributions and debates of academic disciplines in African studies, with emphasis on professional dimension. Review of discipline's literature, resources, career opportunities, and professionals themselves. Letter grading.

**296. Africanist Working Group. (1 to 2)** Research group meeting, one hour per week per unit. Collaborative exploration and discussion of current research and literature on modern Africa. Specific projects determined by research being conducted by working group participants. Activities include designing and refining research proposals, gathering and analyzing data, and interpreting and reporting results, as well as presenting research to receive critical feedback from other class participants. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Limited to graduate African studies students. May be repeated, but only 4 units may be applied toward minimum graduate course requirement. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination (4)** Tutorial, to be arranged. Limited to graduate African studies students. Normally taken only during term in which student is being examined. May not be applied toward minimum graduate course requirement. S/U grading.

**598. Research for and Preparation of MA Thesis (4)** Tutorial, to be arranged. Limited to graduate African studies students. Normally taken only during term in which student intends to complete MA thesis. May not be applied toward minimum graduate course requirement. S/U grading.

# American Indian Studies

## American Indian Studies Courses

### Lower Division

**M10. Introduction to American Indian Studies (5)** (Same as World Arts and Cultures M23.) Lecture, three hours; discussion, one hour; activity, one hour. Survey of selected Native North American cultures from pre-Western contact to contemporary period, with particular emphasis on early cultural diversity and diverse patterns of political, linguistic, social, legal, and cultural change in postcontact period. P/NP or letter grading.

**18. Leadership and Student-Initiated Retention (2)** (Same as African American Studies M18, Asian American Studies M18, and Chicana/o and Central American Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M118. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M118. Student-Initiated Retention and Outreach Issues in Higher Education (4)** (Same as African American Studies M118, Asian American Studies M168, and Chicana/o and Central American Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

**C120. Working in Tribal Communities: Introduction (4)** Lecture, four hours. Through readings, discussion, and Native guest lecturers, students learn to participate within Native American communities engaged in political, social, and cultural processes of change and preservation. Development of proposal for Native nation-building project. Concurrently scheduled with course C220. Letter grading.

**C121. Working in Tribal Communities: Preparing for Fieldwork (4)** Lecture, four hours. Through readings, discussion, Native guest lecturers, and project participation, introduction to rules of conduct and skills necessary to successfully work or carry out community service projects for Native American communities and organizations. Concurrently scheduled with course C221. Letter grading.

**C122XP. Working in Tribal Communities: Community-Engaged Learning (4)** (Formerly numbered C122SL.) Seminar, one hour; fieldwork, four hours. Enforced requisite: course C121. Recommended: course C120. Participation in community service learning project within Native American communities and organizations where students are mentored and supported by faculty members, other students, and project directors toward completing assigned ser-

vice learning tasks and contributing to project activities. May be repeated with consent of instructor. Concurrently scheduled with course C222XP. Letter grading.

**123. Afro-Indigenous History: from Enslavement and Settlement to Black Lives Matter and Indigenous Sovereignty (4)** (Same as African American Studies M121.) Lecture, four hours; discussion, one hour. Examination of how race was developed through experiences of African-descended peoples and indigenous people in U.S. and beyond. Examination of key episodes in history. Using articles, books, documentaries, and contemporary popular culture, examination of relationship between people of African descent and indigenous people. Study takes broad, thematic approach. Topics include first encounters in Americas and ideologies that led to enslavement and dispossession; period of enslavement and indigenous removal in 19th century; mid-20th-century social movements; and contemporary manifestations, especially solidarity shown between Black Lives Matter and Dakota Access Pipeline protesters. P/NP or letter grading.

**129. Participatory Action Research on Youth Organizing for Racial Justice (4)** (Same as African American Studies M129B, Asian American Studies M128, Chicana/o and Central American Studies, and Public Affairs M122.) Lecture, four hours. Students are trained to conduct participatory action research on grassroots youth organizing across California. Students gain historical and theoretical background on multi-racial and inclusive organizing. Students learn how to collect and analyze data pertaining to pressing organizing issues. Study and critical analysis of youth organizing strategies. Weekly training modules on data collection and grassroots organizing strategies that prepare students for internships in grassroots youth organizing groups serving Asian American, Black, Latinx, and Native American communities. P/NP or letter grading.

**C130. California Indian Strategies for Contemporary Challenges (4)** Seminar, three hours. Through readings, discussion, and Native guest lecturers, introduction to contemporary issues and processes of self-directed social change and political, cultural, legal, and economic processes of nation building in contemporary California Native communities. Concurrently scheduled with course C230. Letter grading.

**140. Federal Indian Law and Policy (4)** Lecture, four hours. Through readings, discussion, and Native guest lecturers, introduction to fundamental concepts and history of federal Indian law and policy. Investigation of contemporary policies and legal issues and exploration of Native responses to policy and law. Letter grading.

**C145. Contemporary Indigenous Nations (4)** Seminar, three hours. Introduction to topics on contemporary indigenous nations, including social movements, social and cultural change and continuity, nation building, law and justice relations, economic development, education and socialization, international relations, comparative policy, colonialism, migration, national and social identities, and other issues and social cultural processes, seen as distinct from ethnicity, race, class, and nation, with focus on indigenous communities that have maintained self-government, territory, and culture. Investigation and search for analytic and policy patterns that give greater understanding and knowledge about current conditions and social and cultural processes of indigenous nations. Concurrently scheduled with course C245. Letter grading.

**158. Nation Building (4)** Lecture, three hours; fieldwork/research, nine hours. Limited to junior/senior American Indian Studies majors. Examination of historical interplay of federal policies with tribal cultures that has shaped political development of American Indian tribal nations. Current developments within Indian nations, including restructuring government, developing economies, and asserting cultural sovereignty to be subject of research, study, and required community-based projects. Letter grading.

**161. Comparative American Indian Societies (4)** (Same as Sociology M161.) Lecture, three hours. Prerequisite: course M10 or Sociology 1. Comparative and historical study of political, economic, and cultural change in indigenous North American societies. Several theories of social change, applied to selected case studies. Letter grading.

**162. Language Endangerment and Linguistic Revitalization (4)** (Same as Anthropology M156.) Lecture, three hours; activity, one hour. Prerequisites: course M10, Anthropology 4. Examination of causes and consequences of current worldwide loss of linguistic diversity and revelation of kinds of efforts that members of threatened heritage language communities have produced in their attempt to revitalize these languages. Projected loss of as many as half of world's languages by end of 21st century can only be explained as outcome of such factors as nationalism, global economic forces, language ideological change, and language shift away from smaller indigenous and tribal languages. Since loss of such languages means both reduction of cultural as well as linguistic diversity, many affected communities have engaged in various language renewal practices. Examination of some diverse strategies that have been attempted, including immersion, language and culture classes, master-apprentice, interactive multimedia, mass media approaches, and lan-

guage policy-reform approaches. Evaluation of effectiveness of these measures and of very imagery used to discuss language endangerment. P/NP or letter grading.

**CM168. Healthcare for American Indians (4)** (Same as Health Policy M168.) Lecture, two hours; discussion, one hour. Identification of traditional health beliefs, health practices, and healthcare systems of American Indian tribes to understand role of U.S. government in healthcare services for Indian people. Description of health problems that have affected American Indian people and definition of contemporary health issues and measures taken to raise health status of American Indian people. Concurrently scheduled with course C268. Letter grading.

**C170. California Indian History (4)** Lecture, four hours. Introduction to overview of California Indian history, specific tribal community histories, and/or contemporary California Indian history through readings, discussion, and Native guest lecturers. May be repeated for credit with topic change and consent of interdepartmental chair. Concurrently scheduled with course C270. Letter grading.

**C175. Cultures of Native Southern California (4)** Lecture, three hours. Introduction to Southern California indigenous societies through readings, discussion, guest lecturers, and direct community participation. May be repeated for credit with topic and/or instructor change and consent of interdepartmental chair. Concurrently scheduled with course C275. Letter grading.

**C178. California Experiences in Native Cultural Resource Management (4)** Seminar, three hours. Exploration of creation and implementation of laws that affect cultural resource management in California, such as California Environmental Quality Act (CEQA), Native American Graves Protection and Repatriation Act (NAGPRA), AB 978 (California NAGPRA), American Indian Religious Freedom Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), from applied standpoint. To understand goals and challenges of these laws, examination of series of cases from California sites. Concurrently scheduled with course C278. Letter grading.

**180. Introduction to and Practicum in Native American Languages (4)** Lecture, three hours; laboratory, one hour. Development of ability to converse, read, and write at elementary level in Native American languages. Introduction to both phonological and grammatical structures, vocabulary, and cultural patterns of using language as symbolic guide to culture. May be repeated with language change and approval of interdepartmental chair. Letter grading.

**186. Indigenous Film (5)** (Same as World Arts and Cultures M187.) Lecture, four hours; discussion, one hour. Introduction to study of indigenous filmic images and representations, with focus on selected ethnographic, documentary, animated, and feature films ranging from 1920 to present. P/NP or letter grading.

**187. Special Topics in American Indian Studies (4)** Lecture, four hours. Variable topics selected from following: Myth and Folklore of Indian Societies; Contemporary American Indian Literature; Social Science Perspectives of American Indian Life; Law and American Indian; History of American Indians (cultural area); Dance and Music of American Indians (cultural area); American Indian Policy. Consult Schedule of Classes for topics and instructors. May be repeated twice for credit. Letter grading.

**187A. Special Topics in American Indian and Gender Studies (4)** (Same as Gender Studies M185A.) Lecture, three hours. Variable topics in American Indian and gender studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Community Internships in American Indian Studies (4)** Tutorial, two hours; fieldwork, eight hours. Prerequisite: course M10. Limited to juniors/seniors. Internship in supervised setting in community agency. Students meet on regular basis with instructor and provide periodic reports on their experience. Designed to integrate theory and practice through experiential learning to gain firsthand knowledge of diversity, complexity, and variety of needs of American Indian communities. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

**195CE. Comparative Approaches to Community and Corporate Internships (4)** (Same as African American Studies M195CE, Asian American Studies M195CE, Chicana/o and Central American Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in American Indian Studies. (2 to 4)** Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

**198A. Honors Research in American Indian Studies (4)** Tutorial, one hour; activity, three hours. Course 198A is enforced requisite to 198B, which is enforced requisite to 198C. Limited to senior honors program students. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in American Indian Studies (4)** Tutorial, one hour; activity, three hours. Enforced requisite: course 198A. Limited to senior honors program students. Continued development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in American Indian Studies (4)** Tutorial, one hour; activity, three hours. Enforced requisite: course 198B. Limited to senior honors program students. Completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in American Indian Studies. (2 to 8)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199C. Individual Studies: Capstone Synthesis (4)** Tutorial, three hours. Preparation: successful completion of eight upper-division major courses. Limited to senior American Indian Studies majors. Faculty members help students relate their course-derived academic experience to their original research/service efforts involving Native American communities. Completion of research paper and presentation of student work at year-end Research Symposium required. Must be taken in conjunction with American Indian Studies C122SL or an alternative upper-division course approved by program chair and academic coordinator. Individual contract required. Letter grading.

## Graduate

**M200B. Cultural World Views of Native America (4)** (Same as English M266.) Seminar, three hours. Exploration of written literary texts from oral cultures and other expressive cultural forms—dance, art, song, religious and medicinal ritual—in selected Native American societies, as these traditional and tribal contexts have been translated into contemporary literary texts (fiction, poetry, essay, and drama). Survey, from secondary sources, of interdisciplinary methodological approaches taken from literary analysis, structural anthropology, folklore, linguistics, and ethnomusicology. May be repeated for credit with instructor and/or topic change. Letter grading.

**200C. Contemporary Issues of American Indians (4)** (Same as Anthropology M244P and Sociology M275.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in course M200A and cultural and expressive experience of American Indians presented in course M200B. Letter grading.

**201. Introduction to Interdisciplinary Methods in American Indian and Indigenous Studies (4)** Lecture, three hours. Faculty present approaches to interdisciplinary studies and discuss their own research. Participants include wide range of faculty whose research and teaching balance disciplinary and theoretical approaches with interdisciplinary approaches to American Indian studies and indigenous studies. S/U or letter grading.

**202. Key Theories and Concepts in American Indian Studies (4)** Lecture, three hours. Addresses key intellectual movements and concepts (such as sovereignty, self-determination, colonialism, decolonization, etc.) that are central to

formation of American Indian/indigenous studies as discipline. Research and collaboration with indigenous communities is highlighted as core methodological and ethical approach to knowledge acquisition, fieldwork, and theorization. Historical overview of defining moments in American Indian political and social developments as basis for gaining deeper understanding of American Indian intellectual traditions over time. S/U or letter grading.

**203. Advanced Historiography: American Indian Peoples (4)** (Formerly numbered M200A.) (Same as History M200W.) Lecture, 90 minutes; seminar, 90 minutes. Introduction to culture-histories of North American Indians and review of Indian concepts of history. Stereotypical approach to content and methodologies related to Indian past that is interdisciplinary and multicultural in its scope. Letter grading.

**207. Economic Principles and Economic Development in Indigenous Communities (4)** (Formerly numbered M200D.) (Same as Public Policy M270.) Seminar, two hours; discussion, one hour. Limited to graduate students. Familiarization with fundamental concepts, themes, and principles of economic development. Focus on indigenous communities broadly and contrasted with other regions, countries, and communities. Introduction to important concepts such as opportunity cost, economic trade-offs, adverse selection, moral hazard, and discount rates through use of existing research and case studies. These basic concepts are important for graduate students who will be analyzing and evaluating research conducted on and for indigenous peoples and governments. S/U or letter grading.

**208. Native American Languages and Discourses of Indigeneity (4)** (Same as Anthropology M208.) Seminar, three hours. Preparation: prior coursework in anthropology, linguistics, or American Indian studies. Close reading and discussion of books and articles on topics relating to Native American languages and discourse of indigenous communities. Topics include critical language documentation, multilingualism, indigenous language practices, language ideologies, policies and practices of publication and concealment, language revitalization, language and identity, language and construction of place, storytelling and performance, community/academic collaboration, language as intellectual property, linguistic expressions of indigeneity, and cultural sovereignty. Offers resources to understand situation of indigenous languages in wide range of Native American communities. Students perform variety of roles in discussions, develop book reviews, grant proposals, critical essays, and—where appropriate—sections of their theses and dissertations. S/U or letter grading.

**C220. Working in Tribal Communities: Introduction (4)** Lecture, four hours. Through readings, discussion, and Native guest lecturers, students learn to participate within Native American communities engaged in political, social, and cultural processes of change and preservation. Development of proposal for Native nation-building project. Concurrently scheduled with course C120. S/U or letter grading.

**C221. Working in Tribal Communities: Preparing for Fieldwork (4)** Lecture, four hours. Through readings, discussion, Native guest lecturers, and project participation, introduction to rules of conduct and skills necessary to successfully work or carry out community service projects for Native American communities and organizations. Concurrently scheduled with course C121. S/U or letter grading.

**C222XP. Working in Tribal Communities: Community-Engaged Learning (4)** (Formerly numbered C222SL.) Seminar, one hour; fieldwork, four hours. Enforced requisite: course C221. Recommended: course C220. Participation in community service learning project within Native American communities and organizations where students are mentored and supported by faculty members, other students, and project directors toward completing assigned service learning tasks and contributing to project activities. May be repeated with consent of instructor. Concurrently scheduled with course C122XP. Letter grading.

**228A. Tribal Legal Systems. (3, 4)** Seminar, two hours. Course 228A is enforced requisite to 228B. Study of traditional and contemporary legal systems of Native American tribal nations. Detailed examination of several different tribal systems, including Navajo, Cherokee, Iroquois, and Hopi, with emphasis on diversity of tribal legal regimes, comparisons with Anglo-American legal system, changes in tribal systems during period of contact with non-Indians, and relationship between tribes' legal systems and other aspects of their cultures, such as religion and social structure. Independent research paper with focus on contemporary or historic topic required. Concurrently scheduled with Law 528. In Progress grading (credit to be given only on completion of course 228B).

**228B. Tribal Legal Systems. (1, 2)** Seminar, two hours. Enforced requisite: course 228A. Continuation of course 228A. Study of traditional and contemporary legal systems of Native American tribal nations. Detailed examination of several different tribal systems, including Navajo, Cherokee, Iroquois, and Hopi, with emphasis on diversity of tribal legal regimes, comparisons with Anglo-American legal system, changes in tribal systems during period of con-



tact with non-Indians, and relationship between tribes' legal systems and other aspects of their cultures, such as religion and social structure. Independent research paper with focus on contemporary or historic topic required. Concurrently scheduled with Law 528. S/U or letter grading.

**C230. California Indian Strategies for Contemporary Challenges (4)** Seminar, three hours. Through readings, discussion, and Native guest lecturers, introduction to contemporary issues and processes of self-directed social change and political, cultural, legal, and economic processes of nation building in contemporary California Native communities. Concurrently scheduled with course C130. S/U or letter grading.

**238A. Tribal Legal Development Clinic (3)** Lecture, three hours. Course 238A is enforced requisite to 238B. Students provide nonlitigation legal assistance to Indian nations. Projects include development and modification of tribal legal codes and constitutional provisions, creation of tribal dispute resolution processes, and drafting of intergovernmental agreements. Legislative drafting and cross-cultural representation skills emphasized. Faculty members meet with tribal leaders to inform them of availability of clinic services and determine whether clinic could assist them with their legal development needs. Once students are assigned to particular projects, they meet with relevant tribal officials and community groups with travel funds supplied. Students learn about tribal governments and legal systems, including federal constraints on activities of tribal legal institutions, and culture of tribe they are representing to be able to craft legislation and other documents that meet tribal intentions and needs. Concurrently scheduled with Law 728. In Progress grading (credit to be given only on completion of course 238B).

**238B. Tribal Legal Development Clinic (1)** Lecture, three hours. Enforced requisite: course 238A. Continuation of course 238A. Students provide nonlitigation legal assistance to Indian nations. Projects include development and modification of tribal legal codes and constitutional provisions, creation of tribal dispute resolution processes, and drafting of intergovernmental agreements. Legislative drafting and cross-cultural representation skills emphasized. Faculty members meet with tribal leaders to inform them of availability of clinic services and determine whether clinic could assist them with their legal development needs. Once students are assigned to particular projects, they meet with relevant tribal officials and community groups with travel funds supplied. Students learn about tribal governments and legal systems, including federal constraints on activities of tribal legal institutions, and culture of tribe they are representing to be able to craft legislation and other documents that meet tribal intentions and needs. Concurrently scheduled with Law 728. S/U or letter grading.

**C245. Contemporary Indigenous Nations (4)** Seminar, three hours. Introduction to topics on contemporary indigenous nations, including social movements, social and cultural change and continuity, nation building, law and justice relations, economic development, education and socialization, international relations, comparative policy, colonialism, migration, national and social identities, and other issues and social cultural processes, seen as distinct from ethnicity, race, class, and nation, with focus on indigenous communities that have maintained self-government, territory, and culture. Investigation and search for analytic and policy patterns that give greater understanding and knowledge about current conditions and social and cultural processes of indigenous nations. Concurrently scheduled with course C145. S/U or letter grading.

**261. Comparative Indigenous Societies (4)** Lecture, two hours; discussion, two hours. Designed for graduate students. Investigation of detailed historical and contemporary ethnographic analyses of social change and cultural continuity within indigenous nations, primarily of U.S., but elsewhere also. Discussion of theories of change, comparative methodologies, and case materials. Letter grading.

**265. Federal Indian Law I. (4, 6)** Lecture, three to four hours. Overview of federal Indian law, including nature and history of tribal federal legal and political relationship; basic legal definitions within federal Indian law (such as what is Indian country); equal protection issues posed by federal Indian legislation; canons of construction unique to Indian law; tribal sovereignty and its protection; basic questions of federal and state authority within Indian country; and tribal, federal, and state jurisdiction in Indian country according to default rules as well as special statutory regimes. May be concurrently scheduled with Law 267. S/U or letter grading.

**265A. Federal Indian Law I. (1 to 8)** (Same as Law M267.) Lecture, three hours. Course M265A is enforced requisite to 265B. Overview of federal Indian law through study of cases and historical and contemporary materials. Basic conflicts among sovereign governments that dominate this area of law, especially conflicts over criminal, civil adjudicative, and regulatory jurisdiction. Special attention to status and sovereign powers of Indian nations as recognized under U.S. law, federal trust responsibility, and equal protection issues posed by federal and state legislation singling out Indian nations and tribal members. Federal statutory regimes regulating tribal gaming and child welfare

included. Students gain critical understanding of basic tenets of Indian law, bases of tribal sovereignty, structure of federal-tribal relationship and its history, and sense of future directions courts, tribes, and Congress may take in addressing current legal issues in Indian country. In Progress grading (credit to be given only on completion of course 265B).

**265B. Federal Indian Law I. (1 to 8)** Lecture, three hours. Enforced requisite: course M265A. Continuation of course M265A. Overview of federal Indian law through study of cases and historical and contemporary materials. Basic conflicts among sovereign governments that dominate this area of law, especially conflicts over criminal, civil adjudicative, and regulatory jurisdiction. Special attention to status and sovereign powers of Indian nations as recognized under U.S. law, federal trust responsibility, and equal protection issues posed by federal and state legislation singling out Indian nations and tribal members. Federal statutory regimes regulating tribal gaming and child welfare included. Students gain critical understanding of basic tenets of Indian law, bases of tribal sovereignty, structure of federal-tribal relationship and its history, and sense of future directions courts, tribes, and Congress may take in addressing current legal issues in Indian country. S/U or letter grading.

**267. Federal Indian Law II. (1 to 8)** (Same as Law M382.) Lecture, three hours. Requisites: courses 238A and 238B, or M265A and 265B. Examination in-depth of principles and doctrines of federal Indian law as applied to property rights in land, cultural resources, hunting and fishing rights, water rights, and economic development. Special jurisdictional regimes established by federal statutes, such as Indian Child Welfare Act and Indian Gaming Regulatory Act, addressed. S/U or letter grading.

**267A. Federal Indian Law II. (1 to 8)** (Same as Law M382.) Lecture, three hours. Requisites: courses 238A and 238B, or M265A and 265B. Course M267A is enforced requisite to 267B. Examination in-depth of principles and doctrines of federal Indian law as applied to property rights in land, cultural resources, hunting and fishing rights, water rights, and economic development. Special jurisdictional regimes established by federal statutes, such as Indian Child Welfare Act and Indian Gaming Regulatory Act, addressed. In Progress grading (credit to be given only on completion of course 267B).

**267B. Federal Indian Law II. (1 to 8)** Lecture, three hours. Enforced requisite: course M267A. Continuation of course M267A. Examination in-depth of principles and doctrines of federal Indian law as applied to property rights in land, cultural resources, hunting and fishing rights, water rights, and economic development. Special jurisdictional regimes established by federal statutes, such as Indian Child Welfare Act and Indian Gaming Regulatory Act, addressed. S/U or letter grading.

**C268. Healthcare for American Indians (4)** Lecture, two hours; discussion, one hour. Identification of traditional health beliefs, health practices, and healthcare systems of American Indian tribes to understand role of U.S. government in healthcare services for Indian people. Survey of Federal Indian Health programs and development of Indian Healthcare System and Tribal/Urban Indian Health programs to understand health problems that have affected American Indian people and definition of contemporary health issues and measures taken to raise health status of American Indian people. Concurrently scheduled with course CM168. Letter grading.

**C270. California Indian History (4)** Lecture, four hours. Introduction to overview of California Indian history, specific tribal community histories, and/or contemporary California Indian history through readings, discussion, and Native guest lecturers. May be repeated for credit with topic change and consent of interdepartmental chair. Concurrently scheduled with course C170. S/U or letter grading.

**272. Seminar: Cultural Property Law. (3, 4)** (Same as Law M514.) Seminar, three hours. Exploration of identity, ownership, appropriation, and repatriation of both tangible and intangible cultural property—those items that are of great significance to cultural heritage and cultural survival of people. Consideration of importance of preservation of cultural property as means of maintaining group identity, self-determination, and collective rights. Examination of both international and domestic law governing these issues, addressing such questions as How should cultural property be defined? Can cultural property be protected under existing intellectual property and cultural property regimes? How can we balance protection of cultural property against need or desire for its use in creative expression or scientific advancement? Examination of cultural property of groups in general, with emphasis on cultural property of indigenous peoples, including folklore, traditional knowledge, burial grounds, sacred sites, and ancient ceremonies and traditions. S/U or letter grading.

**274. Good Native Governance. (4, 6)** Seminar, three hours. Examination of legal issues integral to governance that Native American nations face in 21st century, including those that impact and shape political sovereignty, economic development, constitutional reform, membership criteria, cultural property protection, sacred sites, religious freedom, and safety and criminal law

enforcement, among others. Emphasis on breadth of issues that lawyers working with and for Native nations must confront. Integration and highlighting of legal issues unique to Native nations within California. Materials from traditional law review articles, books, and case studies derived from field research to engage students in multidimensional settings that confront Native societies. May be concurrently scheduled with Law 637. S/U or letter grading.

**C275. Cultures of Native Southern California (4)** Lecture, three hours. Introduction to Southern California indigenous societies through readings, discussion, guest lecturers, and direct community participation. May be repeated for credit with topic and/or instructor change and consent of interdepartmental chair. Concurrently scheduled with course C175. S/U or letter grading.

**C278. California Experiences in Native Cultural Resource Management (4)** Seminar, three hours. Exploration of creation and implementation of laws that affect cultural resource management in California, such as California Environmental Quality Act (CEQA), Native American Graves Protection and Repatriation Act (NAGPRA), AB 978 (California NAGPRA), American Indian Religious Freedom Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), from applied standpoint. To understand goals and challenges of these laws, examination of series of cases from California sites. Concurrently scheduled with course C178. S/U or letter grading.

**280A. Indigenous Peoples in International Law (2)** Lecture, four hours. Students become familiar with Indigenous peoples' involvement in human rights movement and corresponding developments (drafting of instruments, claims, reports, hearings, and cases) in United Nations, Organization of American States, and other institutions. Particular attention is paid to U.N. General Assembly's 2007 adoption of Declaration on the Rights of Indigenous Peoples, as well as to regional developments around world. Additional focus on challenges of implementing human rights standards to improve situation of Indigenous peoples in domestic settings, including U.S. Study of contemporary instances in which Indigenous peoples have used international human rights system to address issues in self-governance and political participation. Concurrently scheduled with Law 444. In Progress grading (credit to be given only on completion of course 280B).

**280B. Indigenous Peoples in International Law (1)** Lecture, four hours. Requirement: course 280A. Students become familiar with Indigenous peoples' involvement in human rights movement and corresponding developments (drafting of instruments, claims, reports, hearings, and cases) in United Nations, Organization of American States, and other institutions. Particular attention is paid to U.N. General Assembly's 2007 adoption of Declaration on the Rights of Indigenous Peoples, as well as to regional developments around world. Additional focus on challenges of implementing human rights standards to improve situation of Indigenous peoples in domestic settings, including U.S. Study of contemporary instances in which Indigenous peoples have used international human rights system to address issues in self-governance and political participation. Concurrently scheduled with Law 444. Letter grading.

**596. Directed Individual Studies (4 to 8)** Tutorial, to be arranged. S/U or letter grading.

**598. Research for and Preparation of MA Thesis (4 to 8)** Tutorial, to be arranged. Preparation of research data and writing of MA thesis. S/U grading.

# Anesthesiology and Perioperative Medicine

## Anesthesiology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Anesthesiology (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Anthropology

## Anthropology Courses

### Lower Division

**1. Human Evolution (5)** Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Evolutionary processes and evolutionary past of human species. P/NP or letter grading.

**2. Archaeology: Introduction (5)** Lecture, three hours; discussion, one hour; one field trip. Required as preparation for both bachelor's degrees. General survey of field and laboratory methods, theory, and major findings of anthropological archaeology, including case-study guest lectures presented by several campus archaeologists. P/NP or letter grading.

**3. Culture and Society (5)** Lecture, three hours; discussion, one hour; field-work. Required as preparation for both bachelor's degrees. Introduction to study of culture and society in comparative perspective. Examples from societies around world to illustrate basic principles of formation, structure, and distribution of human institutions. Of special concern is contribution and knowledge that cultural diversity makes toward understanding problems of modern world. P/NP or letter grading.

**4. Culture and Communication (5)** Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to study of communication from anthropological perspective. Formal linguistic methods compared with ethnographically oriented methods focused on context-bound temporal unfolding of communicative activities. Topics include language in everyday life and ritual events, socialization, literacy, multilingualism, miscommunication, political discourse, and art-making as cultural activity. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**67W. Making and Studying Modern Middle East (5)** (Same as Middle Eastern Studies M50CW.) Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Survey of modern Middle Eastern cultures through readings and films from Middle East and North Africa. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. History of Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Brief survey of development of Western social science, particularly anthropology, from Greek and Roman thought to emergence of evolutionary theory and concept of culture in late 19th century. Root paradigm of Western social science and its influence on such notables as Durkheim, Freud, Hall, Lombroso, Marx, Piaget, Terman, and others. Consideration of how this influences ethnocentrism and Eurocentrism, sexism, racism, perception of deviance, and view of culture in general. P/NP or letter grading.

**110. Principles of Archaeology (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 2. Intended for students interested in conceptual structure of scientific archaeology. Archaeological method and theory with emphasis on what archaeologists do and how and why they do it.

Consideration of field strategies, formation processes, chronological frameworks, and other crucial principles of archaeological analysis and interpretation. P/NP or letter grading.

**CM110Q. Introduction to Archaeological Sciences (4)** (Same as Ancient Near East CM169.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM210Q. P/NP or letter grading.

**111. Theory in Anthropological Archaeology (4)** Lecture, three hours. Requisite: course 2. Method and theory with emphasis on archaeology within context of anthropology. Themes include theoretical developments over last 50 years, structure of archaeological reasoning, and selective survey of work on problems of general anthropological interest. P/NP or letter grading.

**112P. Selected Topics in Historical Archaeology (4)** Lecture, three hours. Study of selected topics in historical archaeology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**112Q. Archaeology of Chiefdoms (4)** Lecture, three hours. Requisite: course 2. Examination of chiefdom societies in anthropological record, with readings focused on theory and data from archaeological, historical, and ethnographic literature. Illustration of how people in ranked non-state societies created remarkably rich cultures over entire globe beginning several millennia ago in both Old World and Americas. P/NP or Letter grading.

**112R. Cities Past and Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 2 or 3. Examination of ancient and modern cities to evaluate how urban form developed and continues to thrive as human social phenomenon. Contemporary observations compared with archaeological case studies, including South America, Asia, Africa, and ancient Near East. P/NP or letter grading.

**112S. Politics of Past (4)** Lecture, three hours. Requisite: course 2. Examination of social and cultural context of modern archaeology. Topics include legal frameworks governing archaeological practice, relationships between archaeologists and descendant peoples, and role of archaeology in current politics. P/NP or letter grading.

**113P. Archaeology of North America (4)** Lecture, three hours. Prehistory of North American Indians; evolution of Indian societies from earliest times to (and including) contemporary Indians; approaches and methods of American archaeology. P/NP or letter grading.

**113Q. California Archaeology (4)** Lecture, three hours. From earliest Californians through 10,000 years of history, study of diversity in California's original peoples. Aspects of technology, ideology, ecology, and social/political organization. Historic impacts on California Indians by Euro-Americans. P/NP or letter grading.

**113R. Southwestern Archaeology (4)** Lecture, three hours. Examination of prehistory of American Southwest from 11,000 years ago to historic times. Emphasis on describing and explaining cultural variation and change, employing evolutionary perspective. Special attention to advent of farming and settled towns, large-scale interactive networks, abandonment of Four Corners area, and historic cultures. P/NP or letter grading.

**114P. Ancient Civilizations of Mesoamerica (4)** Lecture, three hours. Archaeology of pre-Hispanic native cultures of Mesoamerica from late Pleistocene through Spanish conquest, with emphasis on formative sociopolitical developments, classic period civilizations, and Aztec society as revealed by archaeology and early Spanish writing. P/NP or letter grading.

**114Q. Ancient Civilizations of Andean South America (4)** Lecture, three hours. Requisite: course 2 or 3. Pre-Hispanic and Conquest period native cultures of Andean South America, as revealed by archaeology and early Spanish writing. Incas and their predecessors in Peru, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements. P/NP or letter grading.

**115. Archaeology of Egypt and Sudan (4)** (Same as Ancient Near East M105.) Lecture, two hours; laboratory, three hours. Ancient Egypt is well known for iconic archaeological sites such as Giza Pyramids and Tomb of Tutankhamun. From these and thousands of less well-known sites, enormous variety of archaeological information can be gained. Through discussion of particular archaeological themes, regions, or sites, examination of methods of prehistoric and historic archaeology and how archaeological information contributes to understanding of social, political, and religious history. Background provided for development of group research projects—finding resources, data gath-

ering, analysis, interpretation, presentation, and training on how to embark on research in this field. Computer laboratory component included in which student research is performed and presented in time map. P/NP or letter grading.

**115P. Archaeology of the African Diaspora (4)** Lecture, three hours; discussion, one hour (when scheduled). Covers thematic and methodological approaches associated with historical archaeology of Africa and the African diaspora. Intended for those interested in African and African diaspora studies, archaeology, slavery, and race. Overview of the development of African diaspora archaeology, and introduction to the major debates within the subfield and its articulation with biological and sociocultural anthropology. Covers archaeological research throughout the wide geographical breadth of the African diaspora in Latin America, North America, the Caribbean, East and West Africa, and the Indian Ocean. Themes covered include gender, race, identity, religion, and ethics in relation to the material record. Supplemented with documentary films and other multimedia sources. P/NP or letter grading.

**116P. Archaeology of South Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Archaeology of Harappan, early historic, and medieval periods in Indian subcontinent. Investigation of large-scale social movements such as Buddhism, as well as consideration of how past is interpreted in present. P/NP or letter grading.

**116Q. Selected Topics in Archaeology of China (4)** Lecture, three hours. Examination of current developments and key issues in archaeology of early Chinese civilizations. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or Letter grading.

**116R. Archaeological Landscapes of China (4)** (Same as Chinese M183.) Lecture, three hours; discussion, one hour (when scheduled). Declassified space images from Cold War era and open remote sensing data of 21st century provide new opportunities for studying landscape transformation in historical China. Combining lectures, library research, and hands-on analysis of archaeological sites on satellite images, investigation of changing historical and archaeological landscape in China during last 5,000 years. Social processes at various scales, from emergence of early cities to rise of metropolitan centers and formation of imperial landscapes. P/NP or letter grading.

**116S. Selected Topics in Archaeology of Southeast Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in archaeology and prehistory of Southeast Asia from Pleistocene to European colonization, including population movements, emergence of agriculture, and development of state level societies. May be repeated for credit with topic change. P/NP or letter grading.

**116XP. Collaborative and Community-Engaged Archaeology (4)** Lecture, three hours; discussion, one hour (when scheduled); fieldwork, 10 hours. Community and stakeholder engagement make anthropological practice more meaningful, especially when results of research empower descendant communities. Anthropology is in great position to work with communities to empower them in strengthening their identity. There is increasing number of anthropologists and allied social sciences who have intensified their cross-disciplinary work and engagement with communities that they work with. Students interact with Philippine collaborators through online conference to discuss how community participation enhances research. Students work with community stakeholders in developing heritage education materials. P/NP or letter grading.

**C117. Selected Laboratory Topics in Archaeology (4)** Lecture, one hour; laboratory, two hours. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. Concurrently scheduled with course CM217. P/NP or letter grading.

**117P. Selected Laboratory Topics in Archaeology (4)** Lecture, three hours. Requisite: course 2. How archaeological research is furthered by specialized analysis of particular classes of cultural remains. Topics may include animal bones, plants, ceramics, rock art. Hands-on experience working with collections and data. May be repeated for credit with topic change. P/NP or letter grading.

**118Q. Conquest and Colonialism (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed to expose students to anthropological issues on European conquest and colonialism. Comparative view of colonialism through examination of case studies of encounters and entanglements between peoples of different cultural traditions during past 500 years. Particular interest is placed in rapid environmental and social transformations that ensued soon after contacts between indigenous groups and European explorers, emphasizing responses of indigenous peoples to such contacts. Focus on archaeological perspectives, particularly long-term dynamics of cross-cultural entanglements, and effects of such interactions in landscape,

material culture, and past ways of life. Highlights significant contributions of archaeology to understanding often rapid and dramatic cultural changes experienced by peoples involved in colonial encounters. P/NP or letter grading.

**118R. Religion and Urbanism (4)** Lecture, three hours; discussion, one hour (when scheduled). Religion and ritual are fundamental components of social life, extending deep into human past. Earliest cities often made use of power of religion, with rulers and elites endowing religious architecture, and placing ritual centers at heart of urban realm. In modern times, however, religious places have been treated with more conflicted identity in cities, retaining some of their prominence in spatial realm while less-articulated with political power given expectation of secularism as dominant public mode in modern nation-states. Examination of power of religion as social, organizational, and political principle in both ancient and modern cities, focusing on four of world's dominant living ritual traditions (Buddhism, Christianity, Islam, Judaism). P/NP or letter grading.

**119. Selected Topics in Archaeology (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in archaeology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**120. Survey of Biological Anthropology (4)** Lecture, three hours. Requisite: course 1. Limited to juniors and seniors. In-depth survey of theory and research in biological anthropology, including evolutionary theory, genetics, primatology, human evolution, and human behavior. P/NP or letter grading.

**124P. Human Behavioral Ecology (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended requisite: course 1 or Life Sciences 1 or 7B. Survey of research in human behavioral ecology. Review of natural and sexual selection, kin selection, and reciprocal altruism. Emphasis on current empirical studies of modern human behavior from evolutionary perspective, including social organization, sexual division of labor, parenting strategies, conflict, and cooperation. P/NP or letter grading.

**124Q. Evolutionary Psychology (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended requisite: course 1. Survey of research in evolutionary psychology. Review of relevant theory in evolution and genetics. Emphasis on empirical studies of modern human behavior from evolutionary perspective, including social behavior, decision making, language, culture, and child development. P/NP or letter grading.

**124R. Evolution of Language (4)** (Same as Communication M124.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 1 or 4 or Linguistics 1. Designed for juniors and seniors. How did human capacity for language evolve? Examination of origin of human language from biological, comparative, developmental, social and computational perspectives. Topics include evolutionary theory, linguistic structure, gesture and speech, animal communication, language learning, language disorders, and computational models of language emergence. P/NP or letter grading.

**124S. Evolution of Human Sexual Behavior (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of human sexual relations and social behavior from evolutionary perspective. Emphasis on theories and evidence for differences between men and women in their patterns of growth, maturation, fertility, mortality, parenting, and relations with members of opposite sex. P/NP or letter grading.

**124T. Evolution of Personality (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended requisite: course 1 or Life Sciences 1 or 7B or Psychology 10. Evolutionary hypotheses for existence of stable differences among individuals in patterns of thought, emotion, and behavior. Descriptive accounts of personality structure (e.g. Big Five). Comparison of explanatory models including balancing selection, facultative calibration, and mutation-selection balance. P/NP or letter grading.

**126M. Molecular Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 1. Introduction to ways in which molecular data are analyzed to answer questions concerning human evolutionary history. Topics include introduction to basic concepts and methods used to understand molecular evolution and origin and history of human species. Students learn principles of population genetics and molecular phylogenetics, and learn how to apply these methods to human and non-human primate DNA sequence data. P/NP or letter grading.

**126N. Genes, Disease, and Culture (4)** (Formerly numbered 126N.) (Same as Society and Genetics M126.) Lecture, three hours; discussion, one hour (when scheduled). Introduction to genes, disease, and culture. Introduction to basic concepts in human genetics, expanding upon evolutionary genetic concepts learned in course 1, and survey of both inherited and infectious disease on global level. Wide range of topics include gene-culture co-evolution, niche construction theory, cultural perceptions of disease, cultural selection, biological and environmental determinism, and evolutionary origins of disease. Course is broken down into genes and genomes, Mendelian disease, com-

plex disease, and infectious disease. Discussion of selected readings that integrate cultural perceptions with biological/genetic phenomena. P/NP or letter grading.

**126P. Paleopathology (4)** Lecture, three hours. Designed for juniors/seniors. Evidence of disease and trauma, as preserved in skeletal remains of ancient and modern human populations. Discussions of medical procedures (trepanation), health status, ethnic mutilation (cranial deformation, footbinding), cannibalism, and sacrifice and roles such activities have played in human societies. P/NP or letter grading.

**126Q. Evolution of Genus Homo (4)** Lecture, three hours. Requisite: course 1. Origin and evolution of genus Homo, including archaic sapiens and Neanderthals. Morphology, ecology, and behavior of these groups. Course ends with appearance of modern humans. P/NP or letter grading.

**128P. Primate Behavior Nonhuman to Human (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Review of primate behavior as known from laboratory and field studies. Theoretical issues of animal behavior, with special reference to nonhuman primates. Discussion of human behavior as product of such evolutionary processes. P/NP or letter grading.

**128Q. Animal Communication (4)** (Same as Communication M127.) Lecture, three hours. Designed for Anthropology and Communication majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. P/NP or letter grading.

**128S. Primate Genetics, Ecology, and Conservation (4)** (Same as Society and Genetics M142.) Seminar, three hours. Focus on genetic research on wild primates at different geographic scales, using readings from primary literature on primate genetics, ecology, and behavior. Study of paternity and kinship, intrapopulation variation, population genetics, biogeography, systematics, phylogenetics/phylogenomics and comparative genomics. Utility and appropriateness of various markers considered for different research questions, e.g., mitochondrial DNA, microsatellites, nuclear genes, Y-chromosome, as well as GWAS and genomic/next generation sequencing platforms, and epigenetic markers. Discussion of methods in fieldwork and lab work, including sampling techniques, collection techniques, wet lab techniques, software analysis packages, and statistical analyses. Introductory-level understanding of genetics expected; study further illuminates areas in molecular biology relevant to case studies analyzed. Letter grading.

**128T. Amazon in Anthropocene (4)** (Same as Society and Genetics M143.) Consideration of major issues faced in Amazon region today using lenses of biology, geography, biological anthropology, primatology, cultural anthropology/ethnography, history, comparative literature, film studies, political science, and environmental science. Analysis of Amazon paleogeography and ecology over time to highlight charismatic species, biodiversity, and habitat types. Focus on human migration into Amazon, diversity of indigenous groups today, and historic/present interactions with environment. Study of European expeditions that carved out political boundaries within Amazon. Study of historic/current effects of human economy and land use on ecology. Exploration of changing power dynamics, inequity, and (un)sustainability of different cultural practices and technologies. Topics include rubber boom, indigenous resistance to oil exploration, hydroelectric dams and clean energy, deforestation arc, and international land grabs for soy plantations. Highlights value of different kinds of knowledge and expertise for interdisciplinary solutions for current crises in Amazon. Letter grading.

**129. Selected Topics in Biological Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in biological anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**130. Study of Culture (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3. Designed for juniors/seniors. 20th-century elaboration and development of concept of culture. Examination of five major paradigms: culture as human capacity, as patterns and products of behavior, as systems of meaning and cognition, as generative structure and semiotic system, as component in social action and reality construction. (Core course for cultural field.) P/NP or letter grading.

**131. Critical Social Theory (4)** Lecture, three hours. Requisite: course 3. Limited to juniors/seniors. In-depth introduction to work of classic social theorists, Karl Marx and Max Weber. Examination of their influence on anthropology. Exploration of recent attempts to synthesize both perspectives. P/NP or letter grading.

**132. Anthropology of Environment (4)** Lecture, three hours; discussion, one hour (when scheduled). Environmental anthropology explores relationship between complex human systems and environments in which they are entangled. Examination of how people impact and are impacted by their environments, and how relationships between people are negotiated through man-

agement of place and space throughout time. Traces multiple theoretical lineages, beginning with early work in cultural ecology and including political ecology, environmental history, contested ontologies, and contemporary environmental justice. Through engagement with grounded, multimodal ethnographies (in text, film, and new media), study of historical movements of people across ecosystems, politics of managing common goods resources such as rivers and atmosphere, bioeconomics of environmental contamination, and development of climate change adaptation strategies in hard-hit areas. P/NP or letter grading.

**133. Anthropology of Food (4)** Lecture, three hours; discussion, one hour (when scheduled). Production, consumption, and distribution of food, with particular emphasis on culture of food. Exploration of ecological history, class, poverty, hunger, ethnicity, nationalism, capitalism, gender, race, and sexuality. Food that shapes identities, desires, and needs in contemporary world. P/NP or letter grading.

**134. Anthropology of Migration (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction of different views on population movement from refugee crisis and migration tendencies to policies surrounding newcomers' incorporation and anti-immigration political strategies. Examination of motivations for migration, both voluntary and involuntary movements (e.g., displacement, slave trades, or ethnic violence). P/NP or letter grading.

**135. Visual Anthropology: Documentary Photography (4)** Lecture, three hours; discussion, one hour (when scheduled). Photographs in anthropology serve many purposes: as primary data, illustrations of words in books, documentation for disappearing cultures, evidence of fieldwork, material objects for museum exhibitions, and even works of art. Topics include relationships between subject and treatment of image, between art photography and ethnographic documentation, role of museum photograph and caption, social practice of taking pictures, and case study on photographing Middle East and North Africa. P/NP or letter grading.

**135R. Multimedia Ethnography (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: native or near-native control of and communicative competence in language of study. Introduction to theories and methods of field-based linguistic anthropology and visual anthropology. Students gain experience in conducting visual anthropological research and in presenting their work in linguo-visual framework. Presentation of finished filmic product. Emphasis on collection and analysis of language in use, with focus on videorecording naturally-occurring dialogic or multiparty conversations, and on analyzing phenomena occurring within these conversations. P/NP or letter grading.

**135S. Sex, Race, and Difference in Transnational Film (5)** Lecture, three hours; discussion, one hour (when scheduled). How are sex, race, and cultural difference represented and constructed in transnational film? Use of lens of transnational film to better understand how discourses of race, gender, sex, and sexuality intersect in formation of identities, structures of inequality, and notions of cultural difference. Draws upon scholarship in feminist anthropology, ethnic studies, and film studies to develop analytical tools for examining selection of films that address dynamism of race, gender, sexuality and cultural difference across time (historically) and across space (in different geographical locations) in transnational contexts. P/NP or letter grading.

**136A. Introduction to Psychological Anthropology: Historical Development (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3. Limited to juniors/seniors. Survey of field of psychological anthropology, with emphasis on early foundations and historical development of field. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings. P/NP or letter grading.

**136B. Introduction to Psychological Anthropology: Current Topics and Research (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of field of psychological anthropology, with emphasis on current topics and research. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings. P/NP or letter grading.

**136M. Medical Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Medical anthropology examines affliction and healing across different cultural and historical contexts. Study of complex interactions between biology, culture, ideology, and society in construction of medical facts. Topics include disability; embodiment; health effects of racism, poverty, and war; humanitarianism; illness narratives; infectious diseases; medicalization; mental health; and organ transplantation. Students gain better grasp of theories and methods of medical anthropology, and ability to critically reflect on their own and others' experiences of disease and healing, as well as on representations of human suffering and medical technologies. P/NP or letter grading.

**137P. Anthropology of Deviance and Abnormality (4)** Lecture, three hours. Requisite: course 3. Relationship between culture and recognition of, responses toward, and forms of deviant and abnormal behavior. P/NP or letter grading.

**137Q. Psychoanalysis and Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Exploration of mutual relations between anthropology and psychoanalysis, considering both theory and method. History of and current developments in psychoanalysis; anthropological critiques of psychoanalytic theory and method, toward cross-cultural psychoanalytic approach. P/NP or letter grading.

**138P. Field Methods in Cultural Anthropology (5)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introduction to skills and tools of data ascertainment through fieldwork in cultural anthropology. Emphasis on techniques, methods, and concepts of ethnographical research and how basic observational information is systematized for presentation, analysis, and cross-cultural comparison. P/NP or letter grading.

**138Q. Fieldwork in Asian American and Pacific Islander Communities (4)** (Same as Asian American Studies M143A.) Lecture, three hours; discussion, one hour. Introduction to qualitative research methods and application of techniques in data collection, analysis, and reporting. Critical reflection of issues related to identity, migration, multiculturalism, tourism, and indigenous rights. Field excursions and guest lecturers from local community included. Given in Hawai'i. P/NP or letter grading.

**139. Selected Topics in Cultural Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in cultural anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**140. Study of Social Systems (4)** Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 3. Introduction to more specialized social anthropology courses. Evaluation of variation in sociocultural systems, with special emphasis on forms of inequality. Basic frameworks of anthropological analysis; historical context and development of social anthropology discipline. P/NP or letter grading.

**141. Careers in Anthropology (4)** Lecture, three hours. Overview of various career paths for students with degrees in anthropology. Helps students develop academic and professional skills in preparation for life after UCLA. Focus on ways in which one can apply anthropological concepts, research methodologies, and analytical skills to range of careers. Guest speakers discuss how they have applied their anthropology degrees to their work outside of academia. P/NP or letter grading.

**142P. Anthropology of Religion (4)** Lecture, three hours. Survey of various methodologies in comparative study of religious ideologies and action systems, including understanding particular religions through descriptive and structural approaches, and identification of social and psychological factors that may account for variation in religious systems cross-culturally. P/NP or letter grading.

**142Q. Ethnic and Religious Minorities (4)** Lecture, three hours. Analytical overview of ethnic and religious minorities in contemporary Middle East and North Africa structured around sociocultural experiences of ethnic and religious groups to understand their political and economic realities. P/NP or letter grading.

**143. Economic Anthropology (4)** Lecture, three hours. Requisite: course 3. Introduction to anthropological perspectives for interpretation of economic life and institutions. Economic facts to be placed in their larger social, political, and cultural contexts; examination of modes of production, distribution, and consumption of goods and services in their relation to social networks, power structures, and institutions of family, kinship, and class. P/NP or letter grading.

**C144M. Multispecies Anthropology (4)** Lecture, three hours. Survey of human-animal relationships across history, from origins of domestication to present-day debates over animal rights, and very different ways societies distant in time and space from our own have construed inner lives of other species and their ties to human others. Concurrently scheduled with course C244M. P/NP or letter grading.

**144P. Constructing Race (4)** (Same as African American Studies M159P and Asian American Studies M169.) Lecture, three hours; discussion, one hour (when scheduled). Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

**144Q. Afro-American Experience in U.S. (4)** (Same as African American Studies M164.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in U.S. by presenting com-

parative and diachronic perspective on Afro-American experience in New World. Emphasis on utilization of anthropological concepts and methods in understanding origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

**144R. Anthros and Indians: Racism, Colonialism, and Development of Anthropology in America (4)** Lecture, three hours. Recommended requisite: course 160A. Examination of long-standing contentious relationship between American Indians and discipline of anthropology and history of anthropological study of American Indians in United States. Consideration of way anthropology has contributed to repression and marginalization—even subjugation—of Indians in American society. P/NP or letter grading.

**C144S. Repatriation of Native American Human Remains and Cultural Objects (4)** Lecture, two hours; discussion, one hour. Native Americans have recently been successful in obtaining passage of federal and state laws repatriating human remains and cultural objects to them. Examination of this phenomenon. May be concurrently scheduled with course C244S. P/NP or letter grading.

**145P. Marriage, Family, and Kinship (4)** (Same as Gender Studies M154P.) Lecture, three hours. Requisite: course 3. Examination of understandings of kinship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and sociocultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

**145Q. Selected Topics in Gender Systems (4)** (Same as Gender Studies M154Q.) Lecture, three hours. Recommended preparation: prior anthropology or gender studies courses. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems and cultures from anthropological perspective. Critical review of relevant theoretical issues using ethnography, case study, and presentations. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**145R. Women and Social Movements (4)** (Same as Gender Studies M154R.) Lecture/discussion, three hours. Recommended preparation: prior gender studies or anthropology courses. Comparative studies of social movements (e.g., nationalist, socialist, liberal/reform), beginning with Russia and China and including Cuba, Algeria, Guinea-Bissau, Mozambique, Nicaragua, and Iran. Analysis of women's participation in social transformations and centrality of gender interests. P/NP or letter grading.

**145S. Culture, Gender, Sexuality (4)** Lecture, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of gender and sexuality. P/NP or letter grading.

**145T. Women's Voices: Their Critique of Anthropology of Japan (4)** (Same as Gender Studies M154T.) Lecture, three hours. Preparation: introductory sociocultural anthropology course. Anthropology of Japan has long viewed Japan as homogeneous whole. Restoration of diversity and contradiction in it by listening to voices of Japanese women in various historical contexts. P/NP or letter grading.

**146. Urban Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for junior/senior social sciences majors. Introduction to modern industrial cities and urban life. Examination of notion of urban space in context of social relations by drawing from historical and cross-cultural urban ethnographies. Urban space is created according to needs of capital and actions of urban subjects. Exploration of ways in which class, gender, race, and geography shape or contest perspectives and priorities on urban issues. P/NP or letter grading.

**146S. Disability Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: introductory sociocultural anthropology course. Study of contemporary anthropological approaches to issues around disability. Exploration of differences in the cultural construction and sociopolitical governance of disability across time and space. P/NP or letter grading.

**147. Development Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3. Designed for juniors/seniors. Comparative study of planned and unplanned development, in particular as it affects rural societies. Emphasis on impact of capital, technological change and gender differences, economic differentiation and class, urban/rural relations, and migration. Discussion of theoretical issues in light of case studies. P/NP or letter grading.

**147P. Anthropology of Violence (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: introductory sociocultural anthropology course. Exploration of violence as both an embodied and felt experience and a socioculturally and politically mediated event. Examination of violence as a classed, racialized, gendered, and sexualized phenomenon, and analysis of how local, national, transnational, and global processes interact in the production, experience, representation, and contestation of violent conflicts.



Topics include colonialism and genocide, political violence, racialization, torture, structural and symbolic violence, gendered violence, and ecologies of war. P/NP or letter grading.

**148. (When) Do Leaders Make Differences? (5)** (Same as Geography M142 and Honors Collegium M152.) Lecture, two hours; discussion, two hours. Examination of leaders who did or did not succeed in effecting change, as background to understanding conditions under which leaders can make differences. Comparison of political leaders, business chief executive officers, sports coaches, and religious leaders. Letter grading.

**149. Selected Topics in Social Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in social anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**150. Language in Culture (5)** (Same as Linguistics M146.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Requisite: course 4 or Linguistics 20. Study of language as aspect of culture; relation of habitual thought and behavior to language; and language and classification of experience. Holistic approach to study of language, with emphasis on relationship of linguistic anthropology to fields of biological, cultural, and social anthropology, as well as archaeology. (Core course for linguistics field.) P/NP or letter grading.

**151. Ethnography of Everyday Speech (5)** Lecture, three hours; fieldwork. Requisite: course 4. Designed for juniors/seniors. Course has two interrelated objectives: (1) to introduce students to ethnography of communication—description and analysis of situated communicative behavior—and sociocultural knowledge that it reflects and (2) to train students to recognize, describe, and analyze relevant linguistic, proxemic, and kinesic aspects of face-to-face interaction. P/NP or letter grading.

**152P. Language Development and Socialization (4)** (Same as Psychology M149.) Lecture, three hours; discussion, one hour (when scheduled). Exploration of processes through which children learn structures and practices of language and become competent participants in linguistic and social worlds around them. Examination of language use and socialization over childhood, across communities of practice, and across different ethnic and socioeconomic groups. Bridges work from anthropology, psychology, linguistics, and cognitive science. Topics include cross-cultural perspectives on child development and wide range of methodological approaches. Examination of ways in which language development and socialization interface with culture, modality, inequality, education, and cognition. P/NP or letter grading.

**152Q. Language and Social Organization through Life Cycle (4)** Lecture, three hours. Requisite: course 4. Examination of forms of participation and talk-in-interaction across various phases of life cycle from birth to old age, using videotaped interactions of naturally occurring activities. How language and interaction within specific contexts are used to constitute identity and how interaction order resulting from face-to-face interaction provides building blocks for larger formations that arise from such activities. P/NP or letter grading.

**152R. Language, Culture, and Education (4)** Lecture, three hours. Requisite: course 4. Examination of various ways in which culture, and language in particular, influence not only educational processes and outcomes, but also very conceptions of what normal development processes and desirable educational outcomes are. P/NP or letter grading.

**153. Language and Identity (4)** Lecture, three hours. Requisite: course 4. Language as social phenomenon. Introduction to several angles from which language use can be critically examined as integral to interactions between individuals and between social groups. P/NP or letter grading.

**154P. Multilingualism: Communities and Histories in Contact (4)** Lecture, three hours. Requisite: course 4. Examination of communicative, political, and poetic aspects of use of two or more languages (multilingualism) by individuals and by groups. Broader themes in social theory, anthropological inquiry, sociolinguistics, and literary studies in lectures to contextualize class readings. P/NP or letter grading.

**154Q. Gender and Language in Society (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 4. Examination of role language plays in social construction of gender identities and ways in which gender impacts language use and ideologies. P/NP or letter grading.

**154SL. Gender and Language across Communities (4)** Lecture, three hours; discussion, one hour. Requisite: course 4. Examination of how language practices contribute to expression of gendered identities in different social groups and situations. Completion of 20 hours of service learning in community service program coordinated through Center for Community Learning required. Active participation in organized service that is conducted in and meets needs of communities. P/NP or letter grading.

**155. Native American Languages and Their Speakers (4)** Lecture, three hours. Requisite: course 4 or American Indian Studies M10. Introduction and comparative analysis of sociocultural aspects of language ideologies and language use in indigenous speech communities through Americas. Examination of cultural diversity of discourse practices for both everyday forms of speaking as well as special registers used in particular cultural contexts. Role of language and communication in Native American education contexts is also examined. Considerable attention is paid to Native American verbal art because of its cultural importance. Examination also of language shift away and current efforts by indigenous groups to reclaim and revitalize heritage languages. Role of linguistic racism directed at Native Americans and hegemonic influence of nation-states is also examined. P/NP or letter grading.

**156. Language Endangerment and Linguistic Revitalization (4)** (Same as American Indian Studies M162.) Lecture, three hours; activity, one hour. Requisites: course 4, American Indian Studies M10. Examination of causes and consequences of current worldwide loss of linguistic diversity and revelation of kinds of efforts that members of threatened heritage language communities have produced in their attempt to revitalize these languages. Projected loss of as many as half of world's languages by end of 21st century can only be explained as outcome of such factors as nationalism, global economic forces, language ideological change, and language shift away from smaller indigenous and tribal languages. Since loss of such languages means both reduction of cultural as well as linguistic diversity, many affected communities have engaged in various language renewal practices. Examination of some diverse strategies that have been attempted, including immersion, language and culture classes, master-apprentice, interactive multimedia, mass media approaches, and language policy-reform approaches. Evaluation of effectiveness of these measures and of very imagery used to discuss language endangerment. P/NP or letter grading.

**C157P. Language and Politics (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 4. Use of recent political events to collect, learn how to analyze, and write up short pieces on political talk, primarily in U.S. Concurrently scheduled with course C257P. P/NP or letter grading.

**158. Culture of Jazz Aesthetics (4)** (Same as Ethnomusicology M130 and Global Jazz Studies M130.) Lecture, three hours. Recommended requisite: course 3 or 4 or Ethnomusicology 20A or 20B or 20C. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

**158P. Global Hip Hop Culture(s): Hip Hop, Race, and Social Justice from South Central to South Africa (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 4. Focus on hip hop culture—movement that has captured minds of youth around world shaping youth identities, ideologies, styles, languages, fashions, and physical and political stances. Through documentaries, readings, and music listening sessions, exploration of various local scenes that comprise global hip hop nation—multilingual, multiethnic movement that often resists geopolitical status quo. P/NP or letter grading.

**159. Selected Topics in Linguistic Anthropology (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in linguistic anthropology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**160A. Native North Americans (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of diversity of Native American societies north of Mexico, including their origins, formation, and development. Particular attention to subsistence systems and their relationship to social institutions and cultural practices, especially religion. P/NP or letter grading.

**160B. Change and Continuity among Native North Americans (4)** Lecture, three hours. Requisite: course 160A. Consideration of tremendous change Native American societies and cultures have undergone since European contact. Emphasis on patterns of adaptation and continuity as Native Americans confronted colonization and its implications. P/NP or letter grading.

**161. Latin American Communities (4)** Lecture, three hours. Overview of social and cultural anthropology of small communities in Latin America. Similarities and contrasts in social organization and interpersonal relations described in context of economic, political, and cultural environments. P/NP or letter grading.

**162. Ethnography of South America (4)** Lecture, three hours. Introduction to ethnography of South American Indians, with special emphasis on Lowland South America. Survey of history and development of man and society in this world area and examination of exemplary cultures symptomatic of various levels of cultural achievement. P/NP or letter grading.

**163P. Ideology and Social Change in Contemporary China (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction to sociocultural changes in China from 1949 to present. Topics include ideology and politics in everyday life, social stratification and mobility, cultural construction of socialist person, changes in courtship, marriage, and family, and political economy of reforms in post-Mao era. P/NP or letter grading.

**163Q. Societies of Central Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Overview of culture and society among diverse peoples of Inner Asia, including Mongolia, Tibet, and Soviet Central Asia. Topics include environment and economic adaptation, politics in traditional isolation and within framework of recent national integration, kinship, forms of marriage and status of women, religion and social order in Hindu/Buddhist culture contact zone, and current problems of modernization. P/NP or letter grading.

**163R. Japan (4)** Lecture, three hours. Overview of contemporary Japanese society. General introduction, kinship, marriage and family life, social mobility and education, norms and values, religions, patterns of interpersonal relations, social deviance. P/NP or letter grading.

**166P. Sub-Saharan Africa (4)** Lecture, three hours. Issues of ecology and political economy; continuing impacts of colonialism, nationalism, and current challenges for development; changes in social relations. Examination of Africa's significance to development of anthropology. Cultural background for understanding events in contemporary Africa provided. P/NP or letter grading.

**166Q. Culture Area of Maghrib (North Africa) (4)** (Same as Arabic M171 and History M108C.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

**167. Culture Area of Middle East (4)** Lecture, three hours. Study of Middle East has suggested many theories as to developmental history of humankind, evolution of human society, birth of monotheism, and origin of agriculture, trade, and cities. Presentation of anthropological material relevant to understanding Middle East as culture area, and Islam as basis of its shared tradition. P/NP or letter grading.

**168P. Cultures of Pacific (4)** Lecture, three hours. Four major culture areas of Australia, Melanesia, Polynesia, and Micronesia. General geographical features, prehistory, and language distribution of whole region. Distinctive socio-cultural features of each culture area presented in context of their adaptive significance. P/NP or letter grading.

**168Q. Ethnic Identity and Ethnic Relations in Hawai'i (4)** (Same as Asian American Studies M143C.) Lecture, three hours; discussion, one hour. Continuing construction and expression of ethnic identity in various cultural forms and social contexts in Hawai'i. Overview of theoretical approaches to and basic concepts in study of ethnic identity and ethnic relations. Discussion of historical and contemporary aspects of ethnic identity and ethnic relations in Hawai'i. Given in Hawai'i. P/NP or letter grading.

**169. Selected Topics in Regional Cultures (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of selected topics in regional cultures. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Anthropology (4)** Seminar, three hours. Research seminar on selected topics in anthropology. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**191HA. Beginning Seminar (4)** Seminar, three hours. Limited to anthropology honors program students. Survey of major research strategies in anthropology to aid honors students in developing research proposals. Letter grading.

**191HB. Field Methods (4)** Seminar, three hours. Limited to anthropology honors program students. Survey of major field methods in anthropology to prepare students to conduct their own field research. Letter grading.

**191HC. Data Analysis (4)** Seminar, three hours. Limited to anthropology honors program students. Survey of major forms of data analysis in anthropology to aid honors students in analysis of their own research data. Letter grading.

**191HD. Writing for Anthropology (4)** Seminar, three hours. Limited to anthropology honors program students. Teaching of writing skills, with focus on how to write honors theses. Letter grading.

**191HE. Writing for Publication and Conference Presentations (4)** Seminar, three hours. Limited to anthropology honors program students. Preparation of honors theses for publication and for conference presentations and posters. Letter grading.

**193. Journal Club Seminars: Anthropology (1)** Seminar, one hour. Limited to undergraduate students. Discussion of current readings in discipline. May be linked with speaker series. May be repeated for credit with topic change. P/NP grading.

**194. Research Group Seminars: Anthropology (1)** Seminar, one hour. Limited to undergraduate students who are part of research group or internship. Discussion of research methods and current literature in discipline or of research of faculty members or students. May meet concurrently with graduate research seminar. May be repeated for credit with topic change. P/NP grading.

**195CE. Community and Corporate Internships in Anthropology (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in Anthropology (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter (e.g., paper or other product) required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Anthropology (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Anthropology Graduate Proseminar (4)** Seminar, three hours. Exposes incoming graduate students to contemporary view of anthropology by using work of UCLA faculty members to identify cross-cutting themes that bridge four fields of discipline and represent state of art of field. Historical overview of field and tracing of formation of discipline. Faculty guest speakers engage in discussion on aspects of their work that intersect with one or more of topical threads of course, followed by responses by instructor and one or more student discussants. Discussion of speaker's work, instructor and student responses, and weekly readings selected from visiting faculty member's work and positioning speaker's work in broader history of field. S/U or letter grading.

**201A. Graduate Core Seminar: Archaeology (4)** (Same as Archaeology M201A.) Seminar, three hours. Required of anthropology students in archaeology field. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in social sciences. Core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

**201B. Graduate Core Seminar: Archaeology (4)** (Same as Archaeology M201B.) Seminar, three hours. Course M201A is required of anthropology students in archaeology field. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in humanities. Core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

**201C. Archaeological Research Design (4)** (Same as Ancient Near East M201 and Archaeology M201C.) Seminar, three hours. Prerequisites: courses M201A, M201B. How to design archaeological projects in preparation for MA thesis or PhD phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

**202A. Core Seminar: Biological Anthropology Colloquium (4)** Seminar, three hours. Required of anthropology students in biological anthropology subfield. Discussion focused on introducing students to field, and providing opportunity to present on current research and learn about, and engage with, work being done by others in department. Letter grading.

**202B. Core Seminar: Biological Anthropology (4)** Seminar, three hours. Required of anthropology students in biological anthropology subfield. First in two-course series. Examination of theoretical and empirical writings that shaped biological subfield, and evolutionary studies of behavior more generally. Topics include evolutionary theory, paleoanthropology, population genetics, and evolutionary game theory. Letter grading.

**202C. Core Seminar: Biological Anthropology (4)** Seminar, three hours. Required of anthropology students in biological anthropology subfield. Second in two-course series. Examination of theoretical and empirical writings that shaped biological subfield, and evolutionary studies of behavior more generally. Topics include evolutionary theory, primatology, evolutionary psychology, cultural evolution, and human behavioral ecology. Letter grading.

**203A. Core Seminar: Sociocultural Anthropology—Historical and Philosophical Foundations of Anthropology (4)** Seminar, three hours. Preparation: two courses from 130, 135A, 150. Examination of theoretical writings that shaped foundations of anthropology as scholarly discipline. Consideration of writings of Durkheim, Weber, Marx, and others. Letter grading.

**203B. Core Seminar: Sociocultural Anthropology—Sociocultural Systems and Ethnography, Anthropology at Mid-Century (4)** Seminar, three hours. Recommended prerequisite: course 203A. Examination of development of major schools of sociocultural thought during middle decades of 20th century. Emphasis on formation of sociocultural theories, concepts, and methodologies found in contemporary anthropology. Letter grading.

**203C. Core Seminar: Sociocultural Anthropology—Scientific and Interpretive Frameworks in Contemporary Anthropology (4)** Seminar, three hours. Recommended prerequisite: course 203B. Examination of selected contemporary works and issues in field of sociocultural anthropology. Letter grading.

**204A. Core Seminar: Linguistic Anthropology (4)** Seminar, three hours. Designed to familiarize graduate students with central theoretical and methodological concepts in linguistic anthropology. Study of classic and contemporary texts, focusing on relationship between language and culture. Focus on linguistic anthropological theory, with additional discussion of methodologies within and related to discipline including ethnographic fieldwork, conversational analysis, syntactic analysis, sociophonetic analysis, sociolinguistic interviewing, and philosophical approaches. Letter grading.

**204B. Core Seminar: Linguistic Anthropology (4)** Seminar, three hours. Survey of recent full-length ethnographic works in linguistic anthropology to engage with methods, practices, topics, and central theoretical frameworks being used across subfield. Consideration of texts' relationship to works in other

subfields, related disciplines, and prior approaches to understanding interplay between language, context, and culture. Consideration also of ethnographic writing as genre, and critical engagement with ways that authors present data, marshal theory, and present arguments within book format. This provides means of characterizing very different generic expectations for dissertation writing within anthropology, allowing for additional professionalization component. Letter grading.

**210. Analytical Methods in Archaeological Studies (4)** Seminar, three hours. Preparation: one term of statistics. Data analysis procedures in archaeology. Emphasis on conceptual framework for analysis of archaeological data, beginning at level of attribute and ending at level of region. S/U or letter grading.

**CM210Q. Introduction to Archaeological Sciences (4)** (Same as Ancient Near East CM269.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM110Q. S/U or letter grading.

**211. Classification in Archaeology: Method and Theory (4)** Seminar, three hours. Limited to graduate anthropology and archaeology students. Discussion of issues that have guided arguments about how archaeological classification of artifacts should be conducted, with focus on ceramic classification and discovery of cultural types. Methods for implementing discovery approach to classification illustrated with lithic and pottery examples. Review of relationship between classification, style, and function. S/U or letter grading.

**212P. Explanation of Societal Change (4)** Seminar, three hours. Examination of processes of societal evolution, emphasizing usefulness of variety of explanatory models from general systems theory, ecology, anthropology, and other sources. Specific research questions vary with each course offering. May be repeated for credit. S/U or letter grading.

**212Q. Archaeology of Urbanism (4)** Seminar, three hours. Evaluation of cities as most complex form of human population center, using both archaeological and modern examples. Observations about material culture and space enable assessment of social dynamics as cities are constructed and lived in by variety of different ethnic, economic, ritual, and political groups. S/U or letter grading.

**214. Selected Topics in Prehistoric Civilizations of New World (4)** Seminar, three hours. Mesoamerican and Andean civilizations normally constitute major focus of seminar. May be repeated for credit. S/U or letter grading.

**216. Topics in Asian Archaeology (4)** (Same as Art History M258B.) Seminar, three hours. Designed for graduate students. Topics may include identification of ethnic groups in archaeology, archaeology of religion, archaeological reflections of commerce and trade and their influence on social development, archaeology of language dispersal, cultural contact and nature of cultural influence. S/U or letter grading.

**CM217. Selected Laboratory Topics in Archaeology (4)** (Same as Archaeology M205A.) Lecture, one hour; laboratory, two hours. Designed for graduate students in archaeology or in other departments. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. Concurrently scheduled with course C117. S/U or letter grading.

**219. Selected Topics in Anthropological/Archaeological Theory (4)** Seminar, three hours. Designed for graduate students. Variable topics course on important theoretical subjects in anthropological archaeology. Topics include early village societies, specialization and cultural complexity, ethnography for archaeologists, power and hierarchy in intermediate societies, materialist/idealist debates, urbanism, and exchange systems. May be repeated for credit. S/U or letter grading.

**221. Behavior, Evolution, and Culture (2)** Seminar, 90 minutes. Research seminar. Weekly speakers present recent findings and theories in behavior, evolution, and culture. Focus on biological approaches to human and non-human behavior, psychology, and culture. S/U grading.

**222. Graduate Core Seminar: Biological Anthropology in Review (4)** Seminar, three hours. Graduate core course in biological anthropology. Topics include evolutionary theory, behavior of nonhuman primates, hominid evolutionary history, and contemporary human variation. Letter grading.

**223. Experimental Biological Anthropology (2)** Seminar, two hours. Research seminar for graduate students conducting experimental research in biological anthropology to assist students in developing research ideas and methods and analyzing results. S/U grading.

**229. Current Problems in Biological Anthropology (4)** Seminar, three hours. Detailed examination of current research in biological anthropology (specific topics to be announced). Emphasis on nature of hypotheses and their testing in ongoing student and faculty research. May be repeated for credit. S/U or letter grading.

**230. Practice Theory and Beyond (4)** Seminar, three hours. Requisites: courses 203A, 203B, 203C. Background in classic social theory—Marx, Weber, Durkheim—assumed. Designed for graduate anthropology students. Basic texts in practice theory by Pierre Bourdieu and Anthony Giddens. Series of upgrades on basic practice theory framework, with greater attention to issues of power and need to historicize anthropological work, and new perspectives on concept of culture. S/U or letter grading.

**232P. Anthropology and Media Theory (4)** Seminar, three hours. Limited to graduate students. Examination of theoretical assumptions and debates that animate visual anthropology very broadly defined, including issues of interpretation, production, and reception of visual media, which includes ethnographic, documentary, and feature films, as well as television programming. S/U or letter grading.

**232Q. Ethnographies of Information Technology (4)** Seminar, three hours. Emerging work on new information economy, with emphasis on ethnography. Reading of anthropological work and materials from range of disciplines, including sociology, geography, urban studies, and management studies. S/U or letter grading.

**233P. Advanced Seminar: Medical Anthropology (4)** Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

**233Q. Latin America: Traditional Medicine, Shamanism, and Folk Illness (4)** (Same as Community Health Sciences M264 and Latin American Studies M264.) Lecture, three hours. Recommended preparation: Community Health Sciences 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

**233R. Health and Culture in Americas (4)** (Same as Community Health Sciences M260 and Latin American Studies M260.) Lecture, three hours. Recommended requisite: Community Health Sciences 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

**233T. Narrative and Times of Trouble (4)** Seminar, three hours. Recommended requisite: one course from 203A, 203B, 203C, 204, or 252A. Exploration of how linguistic and psychological/medical anthropology inform each other in relation to narrative and times of trouble. Topics include narrative sense-making in response to illness and misfortune; phenomenology of time; narrative, healing, and experience; remembering through narrative; narrative subjectivity; and narrative and selves in motion. S/U or letter grading.

**234. Mind, Medicine, and Culture (2)** Seminar, two hours. Interdisciplinary discussion group hosting regular talks and discussions with scholars from UCLA and beyond. Group provides forum for exploring recent research and classical and contemporary theoretical perspectives that inform psychocultural studies and medical anthropology. S/U grading.

**235. Individual in Culture (4)** Seminar, three hours. Designed for graduate students. S/U or letter grading.

**236. Seminar: Psychocultural Studies and Medical Anthropology (4)** Seminar, three hours. Devoted to present state of research in psychocultural studies. Survey of work in child development and socialization, personality, psychobiology, transcultural psychiatry, deviance, learning, perception, cognition, and psychocultural perspectives on change. S/U or letter grading.

**237. Psychological Anthropology (4)** (Same as Psychiatry M272.) Seminar, three hours. Various psychological issues in anthropology, both theoretical and methodological. Areas of interest include such things as culture and theory, culture and personality, and culture psychiatry. Discussion of questions relating to symbolic and unconsciousness process as they relate to culture. Topics vary from term to term. May be repeated for credit with topic change. S/U or letter grading.

**238. Native American Revitalization Movements (4)** (Same as History M260C.) Lecture, two hours; discussion, one hour. Examination of revitalization movements among native peoples of North America (north of Mexico). Specific revitalization includes Handsome Lake, 1870 and 1890 Ghost Dances, and Peyote Religion. Letter grading.

**239. Selected Topics in Field Ethnography. (4 to 8)** Seminar, three hours. Discussion and practicum in various techniques for collecting and analyzing ethnographic field data. S/U or letter grading.

**239Q. Ethnographic Methods in Sociocultural Anthropology (4)** Seminar, three hours. Introduction to some of key methods used in anthropological research, paying special attention to topic formation, research design, deployment of evidence and theoretical resources, techniques of engagement (participant observation, interviewing, genealogy, etc.), media making and analysis, and politics and ethics of ethnographic knowledge production. Approach combines readings in critical anthropology relevant to methodological practice with workshop-style explorations of particular techniques for gathering, analyzing, and presenting field material. Exploration of limits and power of ethnography (broadly construed) by setting up model projects and experimenting with typical fieldwork tasks. S/U or letter grading.

**239R. Latinx Photoethnography (4)** (Same as Chicana/o and Central American Studies M218.) Seminar, three hours. Hands-on introduction to using photography as ethnographic field method. Introduction to basics of photography with review of key and relevant literature from fields of sociocultural anthropology, visual anthropology, and photographic theory. Exploration of technical, ethical, and aesthetic aspects of picture making and their relationship to anthropological field methods, participant observation, and issues of representation—especially among Latinx communities. Student-lead discussions of assigned readings and in-class hands-on learning. Quarter-long photoethnography project focused on Latinx issues in greater Los Angeles. S/U or letter grading.

**241. Culture, Power, Social Change (2)** Seminar, two hours. Cutting-edge research in sociocultural anthropology. Talks given by scholars from different universities around world and faculty and students from UCLA with discussion regularly attended by students and faculty from wide range of related departments in addition to anthropology. Additional discussions about recently published or unpublished manuscripts. Professionalization sessions for doctoral students. Topics of discussion vary from year to year. S/U grading.

**242. Urban Anthropology (4)** Seminar, three hours. Intensive anthropological examination of urban setting as human environment. S/U or letter grading.

**243. Gender Systems (4)** (Same as Gender Studies M263.) Seminar, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

**C244M. Multispecies Anthropology (4)** Lecture, three hours. Survey of human-animal relationships across history, from origins of domestication to present-day debates over animal rights, and very different ways societies distant in time and space from our own have construed inner lives of other species and their ties to human others. Concurrently scheduled with course C144M. S/U or letter grading.

**244P. Contemporary Issues of American Indians (4)** (Same as American Indian Studies M200C and Sociology M275.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B. Letter grading.

**C244S. Repatriation of Native American Human Remains and Cultural Objects (4)** Lecture, two hours; discussion, one hour. Native Americans have recently been successful in obtaining passage of federal and state laws repatriating human remains and cultural objects to them. Examination of this phenomenon. May be concurrently scheduled with course C144S. S/U or letter grading.

**245. Critical Theory of African Diaspora (4)** (Same as African American Studies M202.) Seminar, four hours. Introduction to variety of ideas that underlie articulation of construct of African diaspora. Structured through understanding of African diaspora as historical formation, with focus on African diaspora as distinct intellectual project. Exploration of ways scholars have conceptualized and theorized diasporic condition of Black peoples. Consideration of who belongs to African diaspora community, and how this community is imaged. S/U or letter grading.

**246. Contemporary Problems in Africa (4)** Seminar, three hours. Problematic issues in Africa in light of classical anthropological literature and recent work by anthropologists and other fieldworkers in Africa, with cases from eastern and southern Africa. S/U or letter grading.

**247P. Japan in Age of Empire (4)** (Same as Asian M292 and History M286.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of

that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

**247Q. Central Asian Studies: Discipline, Methods, Debates (2)** (Same as History M287 and Near Eastern Languages M287.) Seminar, two hours. Introduction to study of central Asia as practiced in humanities and social sciences disciplines. S/U or letter grading.

**247R. Modernization and Taiwan Indigenous Societies (4)** Seminar, three hours. Historical examination of impact of modernization on indigenous populations in Taiwan beginning with Han colonization. Examination of integration of indigenous groups into state politics and market economy, and state-sponsored discourses that forced erasure of indigenous cultures and knowledge. Study of resistance by groups to assimilationist processes through emergence of new strategies meant to maintain indigenous identities with regard to Han hegemony. Focus on intensification of indigenous peoples' tie to land. Offers framework to understanding Taiwan indigenous peoples' experiences under modernization. S/U or letter grading.

**248. Anthropology and History of Mediterranean (4)** (Same as History M248 and Near Eastern Languages M248.) Seminar, three hours. Introduction to historical and anthropological writings about Mediterranean. Draws on variety of classic and contemporary theories, histories, and ethnographies about Mediterranean Sea. Topics include geographical and imaginary boundaries, Mediterranean honor/shame concepts, colonial and post-colonial Mediterranean, Levantinism, thalassology, Mediterraneanism, French Mediterraneans, Jewish Mediterranean, colonial and post-colonial sea and migrants and mobilities. Focus on critical history of anthropological study of Mediterranean and scholarly literature that emphasizes southern shores of Mediterranean. Letter grading.

**249. Selected Topics in Social Anthropology (4)** Seminar, three hours. Intensive examination of current theoretical views and literature. S/U or letter grading.

**252A. Ethnography of Communication (4)** Seminar, three hours. Designed for graduate students. Seminar devoted to examining representative scholarship from fields of sociolinguistics and ethnography of communication. Particular attention to theoretical developments including relationship of ethnography of communication to such disciplines as anthropology, linguistics, and sociology. Topical foci include style and strategy, speech variation, varieties of noncasual speech genres, languages and ethnicity, and nonverbal communication behavior. S/U or letter grading.

**252B. Ethnographic Methods in Language, Interaction, and Culture (4)** Seminar, three hours. Requisite: course 252A or Sociology 244A. Ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as social and cultural practice. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading.

**253. Language Ideologies: Political Economy of Language Beliefs and Practices (4)** Lecture, three hours. Language ideological research problematizes fundamental assumptions about speakers' use of language and communicative practices: (1) speakers' awareness of these structures and processes and (2) relationship of this consciousness to speakers' political economic perspectives and to actual communicative conduct. S/U or letter grading.

**254. Discourse Laboratory (2)** Seminar, two hours. Interdisciplinary discussion group around in-progress research projects, talks, published articles, and methodological and professional development in linguistic anthropology. S/U or letter grading.

**255. Native American Languages and Discourses of Indigeneity (4)** (Same as American Indian Studies M208.) Seminar, three hours. Preparation: prior coursework in anthropology, linguistics, or American Indian studies. Close reading and discussion of books and articles on topics relating to Native American languages and discourse of indigenous communities. Topics include critical language documentation, multilingualism, indigenous language practices, language ideologies, policies and practices of publication and concealment, language revitalization, language and identity, language and construction of place, storytelling and performance, community/academic collaboration, language as intellectual property, linguistic expressions of indigeneity, and cultural sovereignty. Offers resources to understand situation of indigenous languages in wide range of Native American communities. Students perform variety of roles in discussions, an develop book reviews, grant proposals, critical essays, and—where appropriate—sections of their theses and dissertations. S/U or letter grading.

**256. Language, Culture, and Education (4)** (Same as Education M286.) Seminar, three hours. Examination of ongoing movement to reclaim and reimagine schooling as site to sustain indigenous, black, Latinx, Asian and Pacific Islander communities, including ways these identities/memberships intersect

with gender identity and expression, sexuality, dis/ability, language, migration, place, class, and more. For centuries of teaching and learning, communities have sought to push against ways nation-state schools have devalued communities, their lifeways, and their lives. Most recently, this movement is indebted to several decades of research, theory, and practice in asset or strength-based pedagogy tradition. Work on culturally sustaining pedagogy (CSP) has joined these decades (and centuries) of work to offer vision of school that seeks to perpetuate and foster—to sustain—linguistic, literate, and cultural pluralism as part of schooling for positive social transformation and revitalization. S/U or letter grading.

**257. Topics in Semantics and Pragmatics (4)** Seminar, four hours. Detailed examination of specialized topics in semantics and pragmatics. Topics vary from year to year and may include metaphor, theories of reference and denotation, honorific speech, evidentiality, reported speech, etc. May be repeated for credit with topic change. S/U or letter grading.

**C257P. Language and Politics (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 4. Use of recent political events to collect, learn how to analyze, and write up short pieces on political talk, primarily in U.S. Concurrently scheduled with course C157P. S/U or letter grading.

**258. Language Socialization (4)** Seminar, four hours. Exploration of process of socialization through language and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Ways in which verbal interaction between novices and experts is structured linguistically and culturally. S/U or letter grading.

**259. Selected Topics in Linguistic Anthropology (4)** Seminar, three hours. Problems in relations of language, culture, and society. May be repeated for credit. S/U or letter grading.

**282. Research Design in Cultural Anthropology (4)** Lecture, three hours. Primarily designed for graduate students preparing for fieldwork. Unique position of anthropology among sciences and resulting problems for scientific research design. Review of typical research problems and appropriate methods. Students prepare their own research designs and present them for class discussion. S/U or letter grading.

**283. Proposal Writing Seminar (4)** Seminar, three hours. Introduction to art of proposal writing. Focus on proposal for anthropological fieldwork, with skills being useful across disciplines and proposal genres. Structured as writing workshop, with weekly writing assignments and group critique. S/U or letter grading.

**284B. Quantitative Research Methodology (4)** Seminar, three hours. Limited to graduate students. Recommended preparation: research design course. Hands-on approach to qualitative methods used in anthropological research and techniques for analysis of qualitative data. Particular methods depend on and are appropriate to research questions and designs students bring to class. S/U or letter grading.

**285A. Qualitative Research: Design and Data Collection (4)** (Formerly numbered M284A.) (Same as Community Health Sciences M216A.) Seminar, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to health care. Letter grading.

**285B. Qualitative Research: Analysis and Dissemination (4)** (Same as Community Health Sciences M216B.) Lecture, three hours. Hands-on approach to qualitative data analysis. Students learn how to conduct all steps of thematic analysis, including developing codes and coding schemes, analytic techniques to compare and categorize data, assessing validity and quality of data, as well as summarizing and presenting qualitative findings. Lectures, discussion of readings, and practical exercises by hand and with Dedoose computer software. S/U or letter grading.

**288. Relational Models Theory and Research Design (4)** Seminar, three hours. Relational models theory (RMT) posits that people in all cultures use combinations of just four relational models (RMs) to organize most aspects of most social coordination: communal sharing, authority ranking, equality matching, and market pricing. Exploration of how people use these RMs to motivate, generate, constitute, coordinate, judge, and sanction social interaction. RMT aims to account for what is universal and what varies across cultures, positing necessity for cultural complements that specify how and with whom each relational model operates. Readings may include RMT research in social anthropology, archaeology, social theory, semiotics, linguistics, developmental, cognitive, social, political, moral, clinical, and cultural psychology, neuroscience, evolution, sociology, family studies, philosophy, management, marketing, and consumer psychology, economics, justice, public health, public policy, and international development. S/U or letter grading.

**294. Human Complex Systems Forum (1)** Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding nature of human societies from complexity and multiagent perspective. May be repeated for credit. S/U grading.

**295. Phenomenological Anthropology (4)** Seminar, three hours. Enforced requisites: courses 203A, 203B, and 203C, or 204A and 204B. Introduction to European phenomenology and its relevance for anthropological research. Exploration of problem of intersubjectivity in its existential, semiotic, and linguistic dimensions. Key topics include human intentionality, consciousness, empathy, agency, cooperation, experience, and embodiment. S/U or letter grading.

**299. Selected Topics in Anthropology (4)** Seminar, three hours. Designed for graduate students. Study of selected topics of anthropological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**495. Teaching Anthropology. (2 to 4)** Seminar/workshop, three hours. Designed for graduate students. Required of all new teaching assistants. Workshop/seminar in teaching techniques, including evaluation of each student's own performance as teaching assistant. Four-day workshop precedes beginning of term, followed by 10-week seminar during term designed to deal with problems and techniques of teaching anthropology. Unit credit may be applied toward full-time equivalence but not toward nine-course requirement for MA. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Individual Studies for Graduate Students. (2 to 8)** Tutorial, to be arranged. Directed individual studies. S/U or letter grading.

**597. Preparation for PhD Qualifying Examination (2 to 12)** Tutorial, to be arranged. S/U grading.

**598. Research for and Preparation of MA Capstone Report or Thesis (2 to 12)** Tutorial, to be arranged. Preparation of research data and writing of MA capstone report or thesis. S/U grading.

**599. Research for PhD Dissertation (2 to 12)** Tutorial, to be arranged. PhD dissertation research or writing. Students must have completed qualifying examinations and ordinarily take no other coursework. S/U grading.

# Applied Linguistics

## Applied Linguistics Courses

### Lower Division

**30W. Language and Social Interaction (5)** Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 30. Exploration of range of topics related to study of language and social interaction in both mundane and professional settings, particularly how language affects social lives and how social organization affects use of language. Topics include different approaches to study of language in social interaction (theories and research methodologies), issues regarding language and social identity (such as socioeconomic status, race, gender, and situational identity), and issues concerning language and culture (such as cross-cultural misunderstanding and language socialization). Satisfies Writing II requirement. Letter grading.

### Graduate

**596. Directed Individual Study (2 to 12)** Tutorial, to be arranged. Limited to MA and PhD students. Independent study in one area of applied linguistics. May not be applied toward MA course requirements. Up to 8 units may be applied toward PhD course requirements. May be repeated for credit. S/U or letter grading.

**597. Preparation for PhD Candidacy Examination (4 to 8)** Tutorial, to be arranged. Preparation: completion of at least six courses of 32-unit requirement for PhD. May not be applied toward 32-unit requirement. May be repeated for credit. S/U grading.

**599. Research for and Preparation of PhD Dissertation (4 to 16)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Required of all PhD candidates each term they are registered and engaged in dissertation preparation. May be repeated for credit but may not be applied toward PhD course requirements. S/U grading.



# Archaeology

## Archaeology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**30. Science in Archaeology (4)** Lecture, three hours; discussion, one hour. Archaeology is rapidly developing due to ongoing introduction of new hardware, software, and information dissemination technology. It is multidisciplinary field of study, combining its own research methods and technologies with elements from geology, history, ethnography, geography, material science, statistics, biology, biochemistry, medicine, and others, presenting opportunities not only to obtain new scholarly insights, but also to provide integrated instruction in science, technology, engineering, and mathematics (STEM) skills. Use of archaeological data as paradigm in STEM education. Instant practical application of mathematics during surveying, geology during ceramic analysis or geophysical research, biochemistry during archaeological residue analysis, or biology during zooarchaeological or paleoethnobotanical research offers point of departure for instructors as well as motivation to students. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**C110. Archaeological Materials Identification and Characterization (4)** Lecture, one hour; laboratory, two hours. Laboratory-oriented introduction for archaeologists to identification and quantitative description of solid materials, especially metals, ceramics, and other inorganic and some organic substances. Concurrently scheduled with course C210. P/NP or letter grading.

**112. Archaeology and Art of Christian and Islamic Egypt (4)** (Same as Art History M119D, Islamic Studies M112, and Middle Eastern Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century CE. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

**C120. Special Topics in Archaeology. (2, 4)** Lecture, three hours. Designed for juniors/seniors. Special topics on theoretical subjects in archaeology such as new strategies, regional synthesis, or current work by core program faculty or special visiting scholars. May be repeated for credit with topic change. Concurrently scheduled with course C220. Final project or paper required if taken for 4 units (P/NP or letter grading); 2-unit course has P/NP grading.

**C159. Fieldwork in Archaeology. (2 to 12)** Fieldwork, to be arranged. Participation in archaeological field excavations or museum research under supervision of staff archaeologists at UCLA. Minimum of one month of field time away from campus required. May be repeated for credit with consent of adviser. Concurrently scheduled with course C259. P/NP or letter grading.

**164. Archaeology of Levant (4)** (Same as Ancient Near East M164, Art History M111E, and Middle Eastern Studies M164.) Lecture, three hours. Survey of archaeology of Levant from late fifth millennium through arrival of Alexander the Great (circa 4500-332 BC). Examination of social, economic, political, and cultural developments through archaeological finds from geographic region bounded by Anatolia and Mesopotamia on north, Egypt to south, and Arabian Peninsula to east. Archaeological methods, theory, and practice are addressed; and geographic, environmental, climatological, and textual data are employed to establish broader context for Levantine traditions. P/NP or letter grading.

**C180. Ancient and Historic Metals: Corrosion, Technology, and Microstructure (6)** Seminar, four hours; laboratory, four hours. Overview of technology of ancient metals, aspects of extraction and alloying, corrosion that ancient metals undergo, and how this impacts their preservation. Exploration of knowledge and research work of last two decades that has substantially advanced understanding of processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure. Laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Discussion of phase and stability diagrams of common alloying systems and environments. Metallographic study samples represent Bronze Age Europe, Renaissance Europe, China from Warring States to Tang dynasty, Japanese swordmaking, Indian high-tin bronze alloys, bronzes, Peruvian, Colombian, Costa Rican, and Panamanian copper and gold-copper alloys. Concurrently scheduled with course C280. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

### Graduate

**M201A. Graduate Core Seminar: Archaeology (4)** (Same as Anthropology M201A.) Seminar, three hours. Required of all students. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in social sciences. Compulsory core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

**201B. Graduate Core Seminar: Archaeology (4)** (Same as Anthropology M201B.) Seminar, three hours. Required of all students. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in humanities. Compulsory core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

**201C. Archaeological Research Design (4)** (Same as Ancient Near East M201 and Anthropology M201C.) Seminar, three hours. Prerequisites: courses M201A, M201B. How to design archaeological projects in preparation for MA thesis or PhD phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

**202. Waystation Certificate Program Core Course (4)** Seminar, two and one half hours. Examination of rapidly evolving views regarding ownership, sale, stewardship, and interpretation of the world's cultural heritage. Critical examination of evolving ethics, legal instruments, and institutional definitions that are shaping current efforts to protect and interpret cultural heritage. Study includes working directly with cultural objects by exploring resources and methods for provenance research and learning to identify and preserve

the heritage material. Participation in the effort to return cultural objects to the nation or community of origin. Exploration and critical examination of current debates about stewardship, repatriation and returns, authenticity and identity, community engagement and the importance of traditional knowledge, the illicit trade, and international law; and consideration of the ethical implications of collecting, buying and selling, and curating cultural objects. Letter grading.

**205A. Selected Laboratory Topics in Archaeology (4)** (Same as Anthropology CM217.) Lecture, one hour; laboratory, two hours. Designed for graduate students in archaeology or in other departments. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. S/U or letter grading.

**205B. Intensive Laboratory Training in Archaeology (6)** Lecture, three hours; laboratory, two hours minimum. Advanced laboratory training for graduate students with extended laboratory hours. Special laboratory-based topics, including but not limited to lithic analysis, ceramic analysis, zooarchaeology, and paleoethnobotany. May be repeated for credit with topic change. S/U or letter grading.

**C210. Archaeological Materials Identification and Characterization (4)** Lecture, one hour; laboratory, two hours. Laboratory-oriented introduction for archaeologists to identification and quantitative description of solid materials, especially metals, ceramics, and other inorganic and some organic substances. Concurrently scheduled with course C110. S/U or letter grading.

**C220. Special Topics in Archaeology. (2, 4)** Lecture, three hours. Special topics on theoretical subjects in archaeology such as new strategies, regional synthesis, or current work by core program faculty or special visiting scholars. May be repeated for credit with topic change. Concurrently scheduled with course C120. Final project or paper required if taken for 4 units (S/U or letter grading); 2-unit course has S/U grading.

**C259. Fieldwork in Archaeology. (2 to 12)** Fieldwork, to be arranged. Participation in archaeological field excavations or museum research under supervision of staff archaeologists at UCLA. Minimum of one month of field time away from campus required. May be repeated for credit with consent of adviser. Concurrently scheduled with course C159. S/U or letter grading.

**265. Depositional History and Stratigraphic Analysis (4)** (Same as Ancient Near East M265.) Lecture, two hours. Theoretical understanding of depositional processes (laws) which lead to site formation and of stratigraphic procedures to be used in recovery of embedded cultural materials. Study of issues covered in literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with help of specialists. S/U or letter grading.

**C280. Ancient and Historic Metals: Corrosion, Technology and Microstructure (6)** Seminar, four hours; laboratory, four hours. Overview of technology of ancient metals, aspects of extraction and alloying, corrosion that ancient metals undergo, and how this impacts their preservation. Exploration of knowledge and research work of last two decades that has substantially advanced understanding of processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure. Laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Discussion of phase and stability diagrams of common alloying systems and environments. Metallographic study samples represent Bronze Age Europe, Renaissance Europe, China from Warring States to Tang dynasty, Japanese swordmaking, Indian high-tin bronze alloys, bronzes, Peruvian, Colombian, Costa Rican, and Panamanian copper and gold-copper alloys. Concurrently scheduled with course C180. Letter grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Individual Studies for Graduate Students. (2 to 12)** Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

**597. Preparation for PhD Qualifying Examination. (2 to 12)** Tutorial, to be arranged. Preparation: completion of formal coursework, passing of language examinations before enrollment. May be repeated for credit with consent of adviser. S/U grading.

**598. MA Paper Preparation. (2 to 12)** Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 12)** Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U grading.

# Architecture and Urban Design

## Architecture and Urban Design Courses

### Lower Division

**1. Introduction to DesignN. (2 to 3)** Studio/lecture/field trips, 40 hours. Limited to high school students. Two- or three-week intensive summer course in architectural design, with focus on developing design skills through space making and its representation. Exposure to contemporary architectural practices through studio work, lectures and presentations, field trips, and final demonstration, critique, and exhibition of student work. Offered only as part of Teen Arch Studio summer program. P/NP grading.

**10A. Histories of Architecture and Urbanism I (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration of developments in global architecture and urban design from prehistory to 1600 and critical reflection on terms such as building, architecture, city, history, and culture. Focus on world context, construction and technology, and history of architectural ideas. P/NP or letter grading.

**10B. Histories of Architecture and Urbanism II (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Survey of architectural and urban history from 1600 to present in global context. Exploration of buildings, cities, spaces, artifacts, landscapes, and ideas through their relation to geopolitical conditions and through their relation to theories of design. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**30. Introduction to Architectural Studies (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration of role of built environment in social, cultural, and political life: how buildings are constructed, what they mean, effects they have on world, and ways they imagine new futures and shape private and public life. Focus on series of contemporary case studies for what each reveals about new possibilities for shaping world in which we live, with emphasis on how architecture extends to cities, roads, books, and films. Consideration of historical context and cultural genealogy of particular buildings and environments, material and economic conditions of building, and more. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102. Introduction to Representation (2)** Studio, four hours; outside study, two hours. Limited to currently enrolled college/university students and graduates of colleges/universities. Introduction to techniques of spatial representation as they relate to architectural design. How to communicate using two- and three-dimensional drawing and modeling. Analog and digital techniques and opportunity afforded by moving between both. Analog techniques include orthographic and axonometric projection. Digital techniques focus on computer graphics fundamentals, including bit map and vector graphic imaging using Adobe suite and modeling using Rhinoceros. Offered in summer only. Letter grading.

**103. Introduction to Architectural Design (6)** Studio, 18 hours. Limited to currently enrolled college/university students and graduates of colleges/universities. Introduction to basic architectural design principles and problem solving. How to control point, line, surface, and volume to shape spaces for human use. Visual analysis as tool for discussing and understanding organization.

Techniques of repetition, variation, order, scale, and rhythm. Use of case-study analysis to uncover disciplinary issues within design problems and production of individual solutions to problems. Offered in summer only. Letter grading.

**121. Studio I (6)** Studio, eight hours; outside study, 10 hours. Limited to Architectural Studies majors. Introduction to basic architectural design principles and problem solving: how to control point, line, surface, and volume to shape spaces for human use. Visual analysis as tool for discussing and understanding organization. Techniques of repetition, variation, order, scale, and rhythm. Use of case-study analysis to uncover disciplinary issues within design problems, as well as to produce individual solutions to those problems. Letter grading.

**122. Studio II (6)** Studio, eight hours; outside study, 10 hours. Enforced requisite: course 121. Limited to Architectural Studies majors. Issues of inhabitation, domesticity, and program. Architectural precedents and principles of spatial organization. Relationship of architectural form to human body and role of architectural space in choreography of human activity. Understanding and application of knowledge of architectural tectonics, structure, and measurement. Letter grading.

**123. Studio III (6)** Studio, eight hours; outside study, 10 hours. Enforced requisites: courses 121, 122. Limited to Architectural Studies majors. Introduction to disciplinary issues, techniques, and organizations of landscape and how those can influence design of building and site. Development of material and temporal characteristics of architecture relative to role those play in landscape. Introduction to issues of accessibility and egress as systems of movement. Structure as serial component that relates to site, construction, topography, climatology, accessibility, and their mutual interaction. Letter grading.

**125B. Digital Cultural Mapping Core Course B: Google Earth, Geographic Information Systems, Hypercities, and Timelines (4)** (Same as Ancient Near East M125B.) Laboratory, three hours; discussion, one hour. Enforced requisite: Ancient Near East 125A. Hands-on laboratory-based investigation of emerging digital mapping technologies, including instruction in Web-based mapping applications, virtual globes, and geographic information systems (GIS). Critique and creation of maps of cultural phenomena, applying skills students learned in Ancient Near East 125A to real-world data sets in humanities and social sciences. By mastering emerging technologies in field of digital cultural mapping, students take part in evaluation and production of sophisticated visual representations of complex data, becoming active participants in development of this new field. How to use suite of GIS and neogeography tools. Fostering of creative approaches to and engagement with mapping technologies: What new questions can be asked and answered using these technologies? How does one reason, argue, and solve real-world problems through digital cultural mapping? Design, development, and implementation of student mapping research projects.

**125C. Digital Cultural Mapping Core Course C: Summer Research (4)** (Same as Ancient Near East M125C.) Laboratory, three hours; fieldwork, one hour. Enforced requisite: course M125B or Ancient Near East M125B. Participation in collaborative geographic information systems (GIS) research project in humanities or social sciences using skills learned in courses 125A and M125B. Gathering and input of datasets from real-world sources, creating visual representations of data through production of digital maps, and performing analysis of larger dataset to answer specific research questions. Final oral presentation required that details student work and provides critical analysis of source material and technological/methodological issues inherent to type of GIS used for investigation. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. Offered in summer only. P/NP or letter grading.

**131. Issues in Contemporary Design (5)** Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. How global design culture today operates as part of set of spatial, economic, political, and social discourses. From development of cities to new formal languages in architecture, consequences of fact that great percentage of our lives is spent in controlled designed environments, including role that research and interdisciplinarity play today in influencing design ideas and processes, as well as how design is influenced by technology and new urban conditions. Letter grading.

**132. Histories of Housing and Domesticity: 19th Century to the Present (5)** Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors or with consent of instructor. Investigation of relationship between architecture, political economy, and the environment through the medium of housing, from 19th-century philanthropy to cooperative, municipal, and national enterprise. Focus on worldwide examples spanning two centuries, study connects politics, law, industry, and finance to better identify the role of architecture in the materialization of housing. Letter grading.

**133. Spatial Justice and the City (5)** Lecture, two hours; discussion, one hour; outside study, 12 hours. Limited to Architectural Studies majors or with consent of instructor. Global cities today, and American cities in particular, are shaped by infrastructure, property, public space, residential and commercial

development, preservation, and territoriality. These are the material artifacts not only of construction technologies, but processes like segregation, suburbanization, colonization, reservation, and regulation. Consideration of questions of equity and power in the apparent and repressed histories of places, in contemporary everyday life experiences in cities, and in possible urban futures. Letter grading.

**141. Technology I: Projections (5)** Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Introduction to techniques of spatial representation as they relate to architectural design. How to communicate using two- and three-dimensional drawing and modeling. Analog and digital techniques and opportunity afforded by moving between both. Analog techniques include orthographic and axonometric projection. Digital techniques focus on computer graphics fundamentals, including bit map and vector graphic imaging using Adobe suite and modeling using Rhinoceros. Letter grading.

**142. Technology II: Building Materials and Methods (5)** Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Introduction to construction systems and materials in relation to design, such as framed, bearing wall, or hybrid systems. Graphic conventions and organization of construction documents. Letter grading.

**143. Technology III: Digital Technology (5)** Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Overview of three-dimensional computer-aided visualization concepts, teaching applications of AutoCAD and Maya and their use relative to process of design and visual communication. Basic representation methods and tools and introduction to additional concepts required to dynamically interact with computer and to explore and understand communicative capacities of different methods of representation. Explanation of bitmap versus vector graphics, typography basics, and color output and integration for print and Web, and introduction to three-dimensional digital modeling and fabrication. Letter grading.

**CM153. Introduction to Sustainable Architecture and Community Planning (4)** (Same as Environment M153.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Concurrently scheduled with course CM247A. Letter grading.

**C188CS. Special Topics in Architecture and Urban Design—Critical Studies (4)** Lecture, three hours. Limited to seniors in good academic standing. Special topics in critical studies in architectural culture. May be repeated for credit. Concurrently scheduled with course C289CS. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**C188T. Special Topics in Architecture and Urban Design—Technology (4)** Lecture, three hours. Limited to seniors in good academic standing. Special topics in technologies used in architecture. May be repeated for credit. Concurrently scheduled with course C289T. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**191. Interventions: Urban Humanities in Action (Capstone Studio) (4)** Seminar, four hours; studio, two hours. Requisites: Digital Humanities 30, 151. Using Los Angeles as laboratory, students address issues of spatial justice through scholarly and practical urban interventions. Projects deploy spatial technologies introduced in Digital Humanities 30 and theoretical knowledge learned in Digital Humanities 151 to create urban humanist action-projects. Letter grading.

**199. Directed Research or Senior Project in Architecture and Urban Design. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M201. Theories of Architecture (4)** (Same as Urban Planning M201.) Lecture, three hours. Exploration of conceptual and historical structures that shape current issues in architectural theory. Readings in primary texts serve as framework for understanding nature of speculative inquiry in architectural context. Letter grading.

**220. Introduction to Computers (2)** Lecture, 90 minutes; laboratory, 90 minutes; outside study, three hours. Introduction to basic concepts, skills, and theoretical aspects of computer-aided architecture design microcomputer skills. Applications selected are commonly found in professional offices. Two- and three-dimensional representation (i.e., painting, drafting, multimedia, hypermedia, and modeling). Letter grading.

**221. Architectural Mediation I (2)** Lecture, two hours; laboratory, 90 minutes; outside study, three hours. Introduction to concepts, techniques, and theoretical discourses of digital modeling/drawing interfaces. Digital applications explored are broadly utilized in professional practices across all scales. Two- and three-dimensional output (i.e., drawing, models, multimedia, laser-cutting, computer numerical control milling). Letter grading.

**222. Architectural Mediation II (2)** Lecture, two hours; laboratory, 90 minutes; outside study, three hours. Exploration of visual concepts and techniques in architectural image-making in context of its discursive histories and contemporary trajectories. Two-dimensional output (i.e., collaged/montaged/drawn/rendered images). Letter grading.

**223. Architectural Mediation III (2)** Lecture, two hours; laboratory, 90 minutes; outside study, three hours. Exploration of advanced digital interfaces such as parametric software, and coding towards exploration of interactive mapping, analysis, time/behavior-based simulations, and fabrications. Two- and three-dimensional output (i.e., animations, animation stills, multimedia, 3D printing, computer numerical control (CNC) milling). Letter grading.

**226C. Computer Visualization (4)** Lecture, three hours. Designed for graduate students. Concept and techniques of computer visualization of artifacts, including realistic rendering and animation. Letter grading.

**227D. Design and Building Models (4)** Lecture, three hours. Review of range of information and knowledge potentially used in design. Knowledge representation, abstractions, and constructs. Logical structure of design information. Development of knowledge used in areas of design, how it can be identified, analyzed, and structured. Letter grading.

**CM247A. Introduction to Sustainable Architecture and Community Planning (4)** (Same as Urban Planning M291.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Concurrently scheduled with course CM153. Letter grading.

**271. Elements of Urban Design (4)** (Same as Urban Planning M292.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations. S/U or letter grading.

**272. Introduction to Market-Rate Real Estate Development and Finance (4)** (Same as Urban Planning M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. Prerequisite: Urban Planning 220A. Introduction to real estate development process specifically geared to students in planning, architecture, and urban design. Financial decision model, market studies, designs, loan packages, development plan, and feasibility studies. Lectures and projects integrate development process with proposed design solutions that are interactively modified to meet economic feasibility tests. S/U or letter grading.

**286. Roman Architecture and Urbanism (4)** Lecture, three hours. Examination of architectural and urban developments during Roman period, from archaic age to late Empire. Built environments of ancient world investigated from various perspectives, with consideration to programming, symbolism, and viewing, as well as to technological, aesthetic, and political factors. S/U or letter grading.

**288. Renaissance Architecture and Urbanism (4)** Lecture, three hours. Examination of architectural developments from 15th to 17th century. Primary focus on Italian peninsula, and extending to entire Mediterranean basin. Analysis of

individual structures, cities, and landscape designs to reveal changing cultural and theoretical values, as well as specific aesthetic and iconographic content. S/U or letter grading.

**289. Special Topics in Architecture and Urban Design. (2 to 4)** Lecture, two hours; discussion, two hours. Selected academic topics initiated by students, student teams, or faculty and directed by faculty member. May be repeated for credit. S/U or letter grading.

**C289CS. Special Topics in Architecture and Urban Design—Critical Studies (4)** Lecture, three hours. Special topics in critical studies in architectural culture. May be repeated for credit. Concurrently scheduled with course C188CS. Letter grading.

**C289T. Special Topics in Architecture and Urban Design—Technology (4)** Lecture, three hours. Special topics in technologies used in architecture. May be repeated for credit. Concurrently scheduled with course C188T. Letter grading.

**290. Special Topics in Critical Studies in Architectural Culture (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Designed for graduate students. Exploration of how architecture operates in relation to wider cultural, historical, and theoretical issues. May be repeated for maximum of 30 units. Letter grading.

**291. Theory of Architectural Programming (4)** Lecture, three hours. Exploration of concepts and methods of architectural programming and its interrelation to design process; planning of design process; various techniques for determination of program contents, basic conditions, resources, and constraints; identification of solution types for given situations. S/U or letter grading.

**293. Politics, Ideology, and Design (4)** (Same as Urban Planning M293.) Lecture, three hours. Exploration of cultural and political context of architecture and planning work. Examination of theory and practice from variety of perspectives applied to set of varied physical environments and to set of current spatialized concepts. Consideration of theoretical propositions that are shaping present urban and architectural debate and concrete case studies where politics and ideology shape design process. Letter grading.

**294A. Environmental Psychology (4)** Lecture, three hours. Introduction to models, concepts, and theories concerning impact of environment on human behavior, perception, and thought. Review of research results concerning space perception, cognitive mapping, preferences and attitudes toward environment, effects of crowding and stress, personal space and territoriality. S/U or letter grading.

**294B. Environmental Psychology (4)** Lecture, three hours. Introduction to models, concepts, and theories concerning impact of environment on human behavior, perception, and thought. Review of research results concerning space perception, cognitive mapping, preferences and attitudes toward environment, effects of crowding and stress, personal space and territoriality. S/U or letter grading.

**295. Introduction to Urban Humanities (4)** (Same as Urban Planning M295.) Seminar, six hours; studio, six hours. Core introduction to urban humanities. Analytical and descriptive methods of humanities paired with speculative and projective methods of architectural and urban design to better understand contemporary state of human environment. Focus on Los Angeles, with concepts seminar, methods laboratory, projects studio, and site visit components. Offered in summer only. S/U or letter grading.

**296. Proseminar: Critical Studies in Architectural Culture (4)** Seminar, three hours. Orientation for PhD students to tradition of architectural theory, scholarship, and research and to current research directions and questions, through intensive reading and critical discussion. Letter grading.

**401. Advanced Topics Studio (6)** Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414) or M.Arch. II student. Students may choose (through lottery) from several different projects focusing on special topics in architectural and urban design to be offered by faculty members. May be repeated for credit. Letter grading.

**402. Final Advanced Topics Studio (6)** Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate- and advanced-level studios for M.Arch. I students; satisfactory completion of advanced-level studios and fourth-term standing for M.Arch. II students. Students may choose (through lottery) from several different advanced studio projects focusing on special topics in architectural and urban design to be offered by faculty members. Exit document (analytic paper with graphic component that critically examines final student design work) required at completion of course. Letter grading.

**403A. Research Studio (2)** Seminar, three hours; outside study, three hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414, 415) or M.Arch. II student. Course 403A is requisite to 403B,

which is requisite to 403C. In-depth research phase, with focus on number of different special topics in architecture and urban design. In Progress grading (credit to be given only on completion of courses 403B and 403C).

**403B. Research Studio (2)** Seminar, three hours; outside study, three hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414, 415) or M.Arch. II student. Requisite: course 403A. In-depth research phase, with focus on number of different special topics in architecture and urban design. In Progress grading (credit to be given only on completion of course 403C).

**403C. Research Studio (6)** Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414, 415) or M.Arch. II student. Requisite: course 403B. Advanced studio project, with focus on number of different special topics in architecture and urban design. Letter grading.

**404. Joint Planning/Architecture Studio (4)** (Same as Urban Planning M404.) Lecture, one hour; discussion, one hour; studio, four hours. Opportunity to work on joint planning/architecture project for client. Outside speakers; field trips. Examples of past projects include Third Street Housing, Santa Monica; New American House for nontraditional households; Pico-Aliso Housing, Boyle Heights; working with resident leaders at Los Angeles City public housing developments. S/U or letter grading.

**411. Introductory Design Studio (6)** Studio, 12 hours; outside study, six hours. Introduction to sketching, drawing, perspectives, CAD. Architectural composition is initially studied in terms of its separate elements. After each is studied by means of manipulative exercise that allows for experimentation of its intrinsic possibilities, students undertake series of closely controlled exercises dealing with combining elements and then design small buildings. Letter grading.

**412. Building Design Studio (6)** Studio, 12 hours; outside study, six hours. Requisite: course 411. Concentration on basic skills, leading to projects exploring architectural program in relation to design process and, particularly, implications of program on architectural forms and concepts. In second phase, introduction of structural elements to fulfill program requirements and to support and further develop intended forms and concepts. Letter grading.

**413. Building Design with Landscape Studio (6)** Studio, 12 hours; outside study, six hours. Requisite: course 412. Introduction to theoretical and technical issues such as site planning, urban design, landscape design, building typology. Building design and site planning in relation to water, landforms, and plants in natural light, heat, and ventilation. Letter grading.

**414. Major Building Design Studio (6)** Studio, 12 hours; outside study, six hours. Requisite: course 413. Designed for second-year graduate students. Introduction to issues such as programming and program manipulation, site planning, urban design, and integration of technical systems and architectural expression. Emphasis either on treatment in breadth of large-scale projects or exploration in depth and detail of smaller-scale projects. Students learn to integrate structure and environmental control and to present their ideas in graphic or model form. Letter grading.

**415. Comprehensive Studio (6)** Studio, 12 hours; outside study, six hours. Requisite: course 414. Culmination of core sequence (courses 411 through 414), with focus on development phase of project. Technical concerns such as lighting, material innovation, sustainability, construction documents, and building envelopes to be considered critical to generation of architectural form, integrated in design of single building project. Letter grading.

**431. Structures I (4)** Lecture, three hours. Preparation: basic algebra, geometry, trigonometry. Introduction to structural behavior and structural statics. Operations with forces and factors, both algebraically and graphically. Equilibrium of force systems; polygon of forces and funicular polygon. Internal actions; axial force and bending moment. Reactions, stability, and statical determinacy. Determinate frames. Plane trusses; analysis and design. S/U or letter grading.

**432. Structures II (4)** Lecture, three hours. Requisite: course 431. Mechanics of structures and structural elements. Elastic materials: stress, strain, and stress-strain relations. Theory of bending: curvature, stress and strain distributions, centroid, moments of inertia, resisting and plastic moments. Design of beams for bending, shear, and deflections. Torsion members. Instability and design of columns. Design for combined bending and compression. Tensile structures; cables, pneumatic structures. Slabs and plates; shells and folded plates. S/U or letter grading.

**433. Structures III (4)** Lecture, three hours. Requisite: course 432. Introduction to statically indeterminate analysis. Structural materials and loads. Wind loads: distribution with height, design for comfort, structure behavior under lateral loads. Steel construction and concepts for high-rise structures. Structural case studies in timber and steel. Introduction to earthquakes: seis-

mology, magnitude, intensity, history. Seismic instrumentation. Case studies of recent earthquakes and damage. Earthquake design concepts and seismic code requirements. S/U or letter grading.

**436. Introduction to Building Construction (2)** Laboratory, two hours; outside study, four hours. Introduction to construction techniques. Study of physical principles and materials for making architecture through series of exercises and field trips. Letter grading.

**437. Building Construction (4)** Laboratory, four hours; outside study, eight hours. Principles of structure and enclosure, with focus on production and materials research. Exploration of building elements for formal and functional properties; in addition, design development of project in previous studio may be developed in detail with integration of range of technical systems. Letter grading.

**441. Environmental Control Systems (4)** Lecture, four hours. Design of mechanical systems necessary for functioning of large buildings: air handling, fire and life safety, plumbing, vertical and horizontal circulation, communication and electrical power distribution, analysis of interaction of these systems and their integrated effects on architectural form of building. S/U or letter grading.

**442. Building Climatology (4)** Lecture, four hours. Preparation: basic physics. Design of buildings that specifically respond to local climate; utilization of natural energies, human thermal comfort; sun motion and sun control devices; use of plant materials and landform to modify microclimate. S/U or letter grading.

**461. Architectural Practice (4)** Lecture, three hours. Historical development of profession; role of architect in contemporary society, current forms of practice and emerging trends. Contractual relationships, ethical responsibility, office management and promotion. Case studies of practical process. S/U or letter grading.

**495. Teaching Architectural History, Theory, and Criticism (2)** Seminar, three hours. Offers guidance and support to first-time teaching assistants (TAs) in Department of Architecture and Urban Design. Covers topics which include teaching philosophies, teaching methodologies, assessment/evaluation/grading practices, and professional development specific to academic professions in the field of architecture. Readings and assignments to develop fundamental teaching principles and provide methods with which to design course syllabi and evaluate/gather resources for course content. S/U grading.

**496. Special Projects in ArchitectureE. (2 to 8)** Tutorial, to be arranged. Projects initiated either by individual students or student teams and directed by faculty member. May be repeated for credit. S/U or letter grading.

**497. Special Projects in Urban DesignN. (2 to 8)** Tutorial, to be arranged. Projects initiated either by individual students or student teams and directed by faculty member. May be repeated for credit. S/U or letter grading.

**498. Comprehensive Examination Seminar (4)** Seminar, three hours; outside study, nine hours. Seminar intended to begin process of developing independent proposal with related research and documentation that moves toward production of final document or book for each project. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Research and Study in Architecture and Urban DesignN. (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**597. Preparation for Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**598. Preparation in Architecture/Urban Design for Master's Thesis. (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**599. PhD Dissertation Research in ArchitectureE. (2 to 8)** Tutorial, to be arranged. Limited to doctoral students. May be repeated for credit. S/U grading.

# Art

## Art Courses

### Lower Division

**1A. Drawing (4)** Studio, eight hours; five hours arranged. Course in basic drawing skills intended as preparation for work in variety of media. P/NP or letter grading.

**1B. Sculpture (4)** Studio, eight hours; five hours arranged. Introduction to concepts and forms of contemporary sculpture to become familiar with tools and material to enable students to visually manifest their individual ideas. Presentation of work of contemporary artists. P/NP or letter grading.

**11A. Painting (4)** Studio, eight hours; five hours arranged. Basics of painting: introduction to technical procedures, tools, and materials. Discussion of fundamental conceptual and formal concerns. P/NP or letter grading.

**11B. Photography (4)** Studio, eight hours; five hours arranged. Fundamentals in technique, with emphasis on individual projects. Varied approaches, processes, and applications of photographic medium within context of art, supported by studies in theory, aesthetics, and history of photography. P/NP or letter grading.

**11C. Printmaking (4)** Studio, eight hours; five hours arranged. Introductory survey of various technical and conceptual concerns in variety of printmaking media as preparation for more focused study in particular media at upper-division level. P/NP or letter grading.

**11D. New Genres (4)** Studio, eight hours; five hours arranged. Introduction to projects in installation, performance, video, film, intermedia, and other nontraditional media and processes. P/NP or letter grading.

**11E. Ceramics (4)** Studio, eight hours; five hours arranged. Introduction to ceramic materials and processes, with emphasis on personal and cultural expression in ceramic media. Discussion of ceramics in contemporary artistic practice and social history of ceramic art. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Production (2)** Studio, four hours. Limited to Art majors. Instruction in production techniques and processes, including basics of recording still images, moving images, and sound. Discussion of professional setups and standard practices as well as alternatives. Editing of still images, moving images, and sound. Review of use of tools, software, workflow, storage, and output modalities. Letter grading.

**21A. Production: Photographic Print (2)** Studio, four hours. Requisite: course 11B. Limited to Art majors. Not open for credit to students with credit for course 20. Techniques and processes, including basics of shooting, editing, and output for still images and photographs. Professional setups and standard practices as well as alternatives. Review of use of tools, software, workflow, storage, and output modalities. Instruction in postproduction skills and tools for editing and altering images and producing high-quality printed images. Letter grading.

**21B. Production: Moving Image and Sound (2)** Studio, four hours. Limited to Art majors. Not open for credit to students with credit for course 20. Moving image and sound production and post-production techniques, tools, and processes, including instruction in basics of shooting, editing, output, and display. Familiarization with production skills, equipment, setups, and standard practices used in creation of moving image and/or sound works. Instruction in use of cameras, lights, and microphones, and shooting and recording setups and techniques, including handheld, fig-rig, dolly-shots, and green screens. Introduction to and development of familiarity with post-production software and processes of editing, animating, exporting, and presenting high-quality sound and moving image works. Letter grading.

**31A. Rise of Modernism in Global Context (5)** Lecture, three hours; discussion, one hour; field trips, three hours. Examination of global forces underlying development of modernist thought on art and society from mid-19th through early-20th centuries. Exploration of origins, development, theory, and practice of modernism in context of colonialism and industrialization. Letter grading.

**31B. Global Modernism (5)** Lecture, three hours; discussion, one hour; field trips, three hours. Art majors should complete courses 31A, 31B, and 31C in sequence in first year. Continuation of impact of modernist ideas through mid-20th century, with focus primarily on work made from 1920s to 1960s

globally. Examination of how modernist ideas and practices were influenced by industrialization, urbanization, colonialism, world wars, and emancipatory movements. Letter grading.

**31C. Modernism and Its Discontents (5)** Lecture, three hours; discussion, one hour; field trips, three hours. Art majors should complete courses 31A, 31B, and 31C in sequence in first year. Continued impact of modernist ideas from 1960s to present, covering shift from modernist to postmodernist practices and theories. Examination of critiques of modernism drawing from emancipatory movements and poststructuralist, feminist, queer, performance, postcolonial, and critical race theory. Letter grading.

**70. Summer Art Institute: Special Topics in Studio (3)** Studio/lecture/field trips, 45 hours. Limited to high school students in Summer Art Institute. Two-week intensive in studio art covering range of media and contemporary art practices and combination of focused studio work, lecture/presentations, field trips, critiques, and final exhibition of student work. May be repeated once for credit. Offered only as part of Summer Institute. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Issues in Contemporary Art (5)** Lecture, three hours; discussion, one hour; screenings/research, 11 hours. Requisites: courses 31A, 31B, 31C. Selected topics in theoretical, critical, aesthetic, and historical studies and their relevance to practicing artists. May be repeated for maximum of 20 units. Letter grading.

**130. Advanced Drawing (5)** Studio, eight hours; seven hours arranged. Requisite: course 1A. Drawing as both independent expressive medium and as means of visualization. May be repeated for maximum of 20 units. Letter grading.

**130A. Advanced Drawing: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, eight hours; seven hours arranged. Requisite: course 1A. Varied approaches to drawing media and content to develop students' technical, expressive, and conceptual tools to understand and explore anti-racism, equity, diversity, and inclusion. Combination of courses 130 and 130A may be repeated for maximum of 20 units. Letter grading.

**132. Survey of Critical Thought (5)** Lecture, three hours; discussion, one hour; screenings/research, 11 hours. Requisites: courses 31A, 31B, 31C. Overview of premodern, modern, and postmodern theory as reflected in critical writing and artistic frameworks from late 19th century to present. Introduction to elements of Marxism, critical theory, feminist and queer theory, indigenous critique, disability studies, black radical tradition, decolonial and postcolonial writings. Specific topics may vary. May be repeated for maximum of 20 units. Letter grading.

**133. Advanced Painting (5)** Studio, eight hours; seven hours arranged. Requisite: course 11A. Varied media and subjects to further develop students' technical and expressive means to implement their ideas. May be repeated for maximum of 20 units. Letter grading.

**133A. Advanced Painting: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, eight hours; seven hours arranged. Requisite: course 11A. Varied approaches to painting media and content to develop students' technical, expressive, and conceptual tools to understand and explore anti-racism, equity, diversity, and inclusion. Combination of courses 133 and 133A may be repeated for maximum of 20 units. Letter grading.

**137. Advanced New Genres (5)** Studio, eight hours; seven hours arranged. Requisite: course 11D. Emphasis to be selected by faculty members from one or more of following media: installation, performance, video, film, other nontraditional media and processes. May be repeated for maximum of 20 units. Letter grading.

**137A. Advanced New Genre: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, eight hours; seven hours arranged. Requisite: course 11D. Varied approaches to new genres media and content to develop students' technical, expressive, and conceptual tools to understand and explore anti-racism, equity, diversity, and inclusion. Combination of courses 137 and 137A may be repeated for maximum of 20 units. Letter grading.



**140. Advanced Printmaking (5)** Studio, eight hours; seven hours arranged. Requisite: course 11C. Selected studies in fine printmaking, historical and contemporary: woodcut, etching and engraving, lithography, silk screen, mixed media. May be repeated for maximum of 20 units. Letter grading.

**145. Advanced Sculpture (5)** Studio, eight hours; seven hours arranged. Requisite: course 1B. Selected studies in sculpture, historical and contemporary: modeling, carving, casting, welding, and other media; forms in space, including installations and nonstudio pieces. May be repeated for maximum of 20 units. Letter grading.

**145A. Advanced Sculpture: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, eight hours; seven hours arranged. Requisite: course 1B. Varied approaches to historical and contemporary sculpture that highlights its social impact and cultural content. Themed lectures and studio assignments develop students' technical, expressive, and conceptual tools to understand and explore anti-racism, equity, diversity, and inclusion as expressed in objects, sculpture, and built environment. Combination of courses 145 and 145A may be repeated for maximum of 20 units. Letter grading.

**147. Advanced Photography (5)** Studio, eight hours; seven hours arranged. Requisite: course 11B. Selected projects in photography and related media, concentrating on development of individual students' artwork. Studio emphasis with special topics in theory and critical analysis. May be repeated for maximum of 20 units. Letter grading.

**147A. Advanced Photography: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, eight hours; seven hours arranged. Requisite: course 11B. Varied approaches to photography's history, media, and content to develop students' technical, expressive, and conceptual tools to understand and explore anti-racism, equity, diversity, and inclusion. Combination of courses 147 and 147A may be repeated for maximum of 20 units. Letter grading.

**148. Advanced Ceramics (5)** Studio, eight hours; seven hours arranged. Requisite: course 11E. Selected studies in ceramics, with emphasis on individualized creative experimentation with materials and techniques introduced in course. Methods and processes to be selected from range of possibilities, including handforming and modeling, preparation and use of molds, slip-casting, and use of potter's wheel. May be repeated for maximum of 20 units. Letter grading.

**148A. Advanced Ceramics: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, eight hours; seven hours arranged. Requisite: course 11E. Varied approaches to clay media and content to develop students' technical, expressive, and conceptual tools to understand and explore anti-racism, equity, diversity, and inclusion. Combination of courses 148 and 148A may be repeated for maximum of 20 units. Letter grading.

**149. Advanced Interdisciplinary Studio (5)** Studio, six hours; discussion, one hour; nine hours arranged. Requisites: courses 31A, 31B, 31C. Varied project-based studies in conceptually-driven approaches to art making in which students' core concerns and aims determine all aspects of projects, including medium, method, and presentational context. Combination of courses 149 and 149A may be repeated for maximum of 20 units. Letter grading.

**149A. Advanced Interdisciplinary Studio: Topics in Anti-Racism, Equity, Diversity, and Inclusion (5)** Studio, six hours; discussion, one hour; eight hours arranged. Requisites: courses 31A, 31B, 31C. Varied project-based studies in conceptually-driven approaches to art making that advance anti-racism, equity, diversity, and inclusion. Students' core concerns and aims determine all aspects of projects, including medium, method, and presentational context. Combination of courses 149 and 149A may be repeated for maximum of 20 units. Letter grading.

**150. Senior Capstone (5)** Studio, eight hours; seven hours arranged. Limited to senior Art majors. Advanced senior projects and portfolio development, with emphasis on analysis and criticism of individual creative work and ideas. Letter grading.

**170. Special Topics in Studio (2 to 4)** Studio/museum visits, four to eight hours; two to four hours arranged. Current themes in art theory, practice, and criticism, offering students opportunity to explore these issues in studio context through critique of work and discussion of recommended readings. May be repeated for maximum of 16 units. P/NP or letter grading.

**C180. Seminar: Art (4)** Seminar, three hours. Limited to junior/senior Art majors. Advanced topics in critical theory and study of contemporary art, with emphasis on individuals, issues, and methodologies. Possible areas of study from structuralism, deconstruction, feminist and psychoanalytic theory, commodification, and censorship. May be repeated for credit. Concurrently scheduled with course C280. Letter grading.

**C181. Exhibition and System (4)** Seminar, four hours. Preparation: at least one course from 100 through 150. Examination of temporary exhibition and its associated field of publications as intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. Concurrently scheduled with course C281. Letter grading.

**C182. Exhibitions and Public Programs (4)** Seminar, four hours. Preparation: at least one course from 100 through 150. Introduction to principles of program planning and community development in relation to visual arts and work of art museums. Concurrently scheduled with course C282. Letter grading.

**C183. Special Topics in Art (2, 4)** Seminar, six hours (2-unit course) or 12 hours (4-unit course). Preparation: at least one course from 100 through 150. Selected topics in art explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. Concurrently scheduled with course C283. Letter grading.

**184. Chicana Art and Artists (4)** (Same as Chicana/o and Central American Studies M175 and World Arts and Cultures M128.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

**185. Whose Monument Where: Course on Public Art (4)** (Same as Chicana/o and Central American Studies M185 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is public, what is public space at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

**186A. Beyond Mexican Mural: Beginning Muralism and Community Development (4)** (Same as Chicana/o and Central American Studies M186A and World Arts and Cultures M125A.) Studio/lecture, four hours. Corequisite: course M186AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

**186AL. Beyond Mexican Mural: Beginning Muralism and Community Laboratory (4)** (Same as Chicana/o and Central American Studies M186AL and World Arts and Cultures M125AL.) Laboratory, four hours. Corequisite: course M186A. Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**186B. Beyond Mexican Mural: Intermediate Muralism and Community Development (4)** (Same as Chicana/o and Central American Studies M186B and World Arts and Cultures M125B.) Studio/lecture, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

**186BL. Beyond Mexican Mural: Intermediate Muralism and Community Laboratory (4)** (Same as Chicana/o and Central American Studies M186BL and World Arts and Cultures M125BL.) Laboratory, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186B. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**186C. Beyond Mexican Mural: Advanced Muralism and Community Development (4)** (Same as Chicana/o and Central American Studies M186C and World Arts and Cultures M125C.) Studio/lecture, six hours. Requisites: courses M186B, M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

**186CL. Beyond Mexican Mural: Advanced Muralism and Community Laboratory (2)** (Same as Chicana/o and Central American Studies M186CL and World Arts and Cultures M125CL.) Laboratory, two hours. Requisite: course M186BL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in commu-

nity-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**C187. Contemporary Art Collections in Los Angeles (2)** Seminar, three hours; outside study, three hours. Limited to junior/senior Art majors. Exploration of critical issues regarding concept of collections and collecting. Visits to institutions and collections and discussion of vision, goals, and scope of collections, as well as individual works. Concurrently scheduled with course C287. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**190. Studio/Research Colloquia in Art (1)** Seminar, three hours. Corequisite: course 197 or 198. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial studio projects or research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for maximum of 4 units. P/NP grading.

**193. Journal Club Seminars: Current Topics in Art (1)** Seminar, three hours. Limited to junior/senior Art majors. Discussion of selected current exhibitions, visiting artist lectures, screenings, and readings in field. May be repeated for credit. P/NP grading.

**195. Community Internships in Art. (2 to 4)** Tutorial, six to 12 hours. Limited to juniors/seniors. Art-related internship in supervised setting in community agency, business, or institution. Students meet on regular basis with instructor and provide periodic reports of their experience. Only 4 units may be applied toward upper-division art elective major requirement. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

**197. Individual Studies in Art. (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Corequisite: course 190. Limited to junior/senior Art majors. Individual intensive studio project or study, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of project or mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

**198. Honors Research in Art. (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Corequisite: course 190. Limited to junior/senior Art majors. Development and completion of comprehensive research or studio project under direct supervision of faculty member. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

## Graduate

**201. Contemporary Histories of Art and Cultural Theory (4)** Seminar, three hours; nine hours arranged. Limited to graduate Art majors. Varied topics in the history of contemporary art. Examination of key developments in art from 1960 to present in their historical, political, and intellectual contexts. May be repeated with topic change. Letter grading.

**271. Graduate Painting. (2 to 8)** Studio, eight hours. Study in painting and associated media. May be repeated for credit with consent of adviser. Letter grading.

**272. Graduate Printmaking. (2 to 8)** Studio, eight hours. Studies in traditional and experimental printmaking. Selected studies in intaglio, lithograph, woodcut, silk screen, photo printmaking, and mixed media. May be repeated for credit with consent of adviser. Letter grading.

**273. Graduate Sculpture. (2 to 8)** Studio, eight hours. Studies in sculpture with specific attention to ongoing nature, specificity, and approach to each student's particular discipline. Individual studio visits and consultation. May be repeated for credit with consent of adviser. Letter grading.

**274. Graduate Photography. (2 to 8)** Studio, eight hours. Studies concentrating on development of individual students' artwork. Studio emphasis with adjacent studies in theoretical and critical analysis. Specific attention to original, expressive, social, and humanistic values of art. May be repeated for credit with consent of adviser. Letter grading.

**275. Graduate New GenreS. (2 to 8)** Studio, eight hours. Studies in alternative media, including installation, performance, video, film, and other nontraditional media and processes. May be repeated for credit with consent of adviser. Letter grading.

**276. Graduate Group Critique (4)** Discussion, four hours; tutorial, to be arranged. Group critique/discussion of students' research. Additional tutorial meetings by arrangement with instructor. May be repeated for credit. Letter grading.

**277. Graduate CeramicS. (2 to 8)** Studio, eight hours. Studies in ceramics and art with investigation of traditional and experimental processes and intellectual approaches to art practice utilizing ceramic media. Emphasis on development of significant body of original work reflecting student's expressive and theoretical concerns. May be repeated for credit. Letter grading.

**278. Interdisciplinary Studio. (2 to 8)** Studio, eight hours. Tutorial focused on directed research, studio visits, and group discussions of recommended readings. May be repeated for credit. S/U or letter grading.

**279. Open Area Studio. (2 to 8)** Studio, 12 hours. Limited to Art MFA students. Non-medium-specific course in which students work to establish, expand, and deepen their studio practices, including technical and research methods, to develop significant body of original artwork that reflects their concerns and furthers their artistic goals. May be repeated for credit. Letter grading.

**C280. Seminar: Art (4)** Seminar, three hours. Advanced topics in critical theory and study of contemporary art, with emphasis on individuals, issues, and methodologies. Possible areas of study from structuralism, deconstruction, feminist and psychoanalytic theory, commodification, and censorship. May be repeated for credit. Concurrently scheduled with course C180. Letter grading.

**C281. Exhibition and System (4)** Seminar, four hours. Examination of temporary exhibition and its associated field of publications as intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. May be repeated for credit. Concurrently scheduled with course C181. Letter grading.

**C282. Exhibitions and Public Programs (4)** Seminar, four hours. Introduction to principles of program planning and community development in relation to visual arts and work of art museums. May be repeated for credit. Concurrently scheduled with course C182. Letter grading.

**C283. Special Topics in Art. (2, 4)** Seminar, six hours (2-unit course) or 12 hours (4-unit course). Selected topics in art explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. Concurrently scheduled with course C183. Letter grading.

**284. Special Topics Technical Studio. (2 to 4)** Studio, three hours; outside study, three to nine hours. Limited to Art MFA students. Selected topics in techniques related to advanced studio projects. May be repeated for credit. Letter grading.

**C287. Contemporary Art Collections in Los Angeles (2)** Seminar, three hours; outside study, three hours. Exploration of critical issues regarding concept of collections and collecting. Visits to institutions and collections and discussion of vision, goals, and scope of collections, as well as individual works. Concurrently scheduled with course C187. Letter grading.

**400A. Visiting Artists Studio (2)** Studio, six hours. Designed for MFA students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. In Progress grading (credit to be given only on completion of course 400B).

**400B. Visiting Artists Studio (2)** Studio, six hours. Designed for MFA students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. S/U grading.

**400C. Visiting Artists Studio (4)** Studio, 12 hours. Limited to graduate art students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. S/U grading.

**401. MFA Working Groups (2)** Research group meeting, two hours. Limited to MFA students. Three or more MFA candidates propose research and/or studio topic and invite Art Department faculty member to mentor group/topic. May be repeated for credit. S/U grading.

**495. Teaching Assistant Training Practicum (2)** Seminar, three hours; outside study, three hours. Forum for first-year teaching assistants for discussion and exploration of teaching pedagogy and classroom mechanics. Problems and practices of teaching art at college level, as well as role of teaching assistants within department. Designed to help new teaching assistants develop teaching skills and to orient them to department and University policies and resources. May not be applied toward degree requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

**597. Preparation for Master's Comprehensive Examination. (2 to 12)** Tutorial, to be arranged. May not be applied toward MA or MFA course requirements. May be repeated. S/U grading.

# Art History

## Art History Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Ancient Art (5)** Lecture, three hours; quiz, one hour; museum field trips. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture. P/NP or letter grading.

**21. Medieval Art (5)** Lecture, three hours; quiz, one hour. Early Christian, Byzantine, Islamic, Carolingian, Ottonian, Romanesque, and Gothic art and architecture. P/NP or letter grading.

**22. Renaissance and Baroque Art (5)** Lecture, three hours; discussion, one hour. Survey of Renaissance and baroque art. P/NP or letter grading.

**23. Modern Art (5)** Lecture, three hours; discussion, one hour; museum field trips. History of modern art from 1860s to 1960s, from Manet and impressionists to pop art and minimalism. Study of origins and social functions, as well as aesthetic innovations and philosophical dilemmas of modernism. P/NP or letter grading.

**24. Architecture in Modern World (5)** Lecture, three hours; discussion, one hour. Introduction to study of architectural history through examination of built world of past two centuries. Building technologies and forms of economic, social, and political life have produced modern built environment that is both diverse and increasingly connected. Focus on factors that have affected architecture globally and those that give regions, cultures, and historical periods their particular qualities. Topics include architectural and urban ramifications of modern self-consciousness, nationalism and internationalism, industrialism, colonialism and anticolonialism, and new art and architectural theories. P/NP or letter grading.

**25. Museum Studies (5)** Lecture, three hours; discussion, one hour; museum field trips. General introduction to study of museums in their social and historical contexts. Examination of debates about museum's role in society through case studies and analysis of exhibitions in range of museums including art, history, and ethnographic museums. P/NP or letter grading.

**27. Art and Architecture of Ancient Americas (5)** Lecture, three hours; discussion, one hour; museum field trips. Introduction to art, architecture, and urbanism of Americas (North to South) from earliest settlement until AD 1450. Analysis of variety of media within their historical and cultural context. P/NP or letter grading.

**28. Arts of Africa (5)** Lecture, three hours; discussion, one hour; museum field trips. Introduction to arts and architecture of Africa. Examination of social and historical contexts of their production. Introduction to body of information within framework of conceptual problem through series of case studies. P/NP or letter grading.

**29. Chinese Art (5)** Lecture, three hours; discussion, one hour; museum field trips. General introduction to Chinese art, covering all major periods from Neolithic to modern age. Presentation of monuments as well as artifacts in variety of media in their social and historical contexts. P/NP or letter grading.

**30. Arts of Japan (5)** Lecture, three hours; discussion, one hour; museum field trips. General introduction to art, architecture, and material culture of Japan, from earliest records to present. P/NP or letter grading.

**31. Art of India and Southeast Asia (5)** Lecture, three hours; discussion, one hour; museum field trips. Discussion of selection of monuments and objects from Indian subcontinent and Southeast Asia using key historical, cultural, and religious concepts. Analysis of each monument or object in detail, with their relationships compared and contrasted. P/NP or letter grading.

**32. Arts of the Mediterranean (5)** Lecture, three hours; discussion, one hour. Introduction to past and present cultural diversity of the Mediterranean world. Examination of the Mediterranean region as a connective space, rather than a boundary, between Europe and Africa. P/NP or letter grading.

**88. Lower-Division Seminars (4)** Seminar, three hours. Limited to freshmen. Variable topics; consult Schedule of Classes or department for topics to be offered in specific term. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Art Historical Theories and Methodologies (4)** Seminar, three hours. Requisites: three courses from 20 through 31. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts. Letter grading.

**110A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom (4)** (Same as Ancient Near East CM101A.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. P/NP or letter grading.

**110B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period (4)** (Same as Ancient Near East CM101B.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. P/NP or letter grading.

**110C. Ancient Egyptian Temple and City of Thebes (4)** (Same as Ancient Near East M101C.) Lecture, four hours; fieldwork, one hour. Focus on ancient temples of city of Thebes (modern day Luxor). Theban temples are some of best-preserved cult buildings in all of Egypt, and their study illuminates traditions of artistic representation, architectural development, and social and political transformations echoed throughout all of ancient Egypt. Investigation of ritual linking of temples on Nile's eastern and western banks through festival processions, chronological changes in function and form of Theban temples through time, and statuary program of individual temples. P/NP or letter grading.

**110D. Art and Death in Ancient Egypt (4)** (Same as Ancient Near East M166.) Lecture, four hours. Ways of death, burial, funerary ritual, and afterlife beliefs in ancient Egypt, as well as in ancient Near East and Nubia, with focus on ancient visual materials—both objects and architecture—from Predynastic to Roman periods. P/NP or letter grading.

**111. Minoan Art and Archaeology (4)** (Same as Classics M153A.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture in Minoan Crete from circa 3000 to 1000 BC. P/NP or letter grading.

**111E. Archaeology of Levant (4)** (Same as Ancient Near East M164, Archaeology M164, and Middle Eastern Studies M164.) Lecture, three hours. Survey of archaeology of Levant from late fifth millennium through arrival of Alexander the Great (circa 4500-332 BC). Examination of social, economic, political, and cultural developments through archaeological finds from geographic region bounded by Anatolia and Mesopotamia on north, Egypt to south, and Arabian Peninsula to east. Archaeological methods, theory, and practice are addressed; and geographic, environmental, climatological, and textual data are employed to establish broader context for Levantine traditions. P/NP or letter grading.

**112A. Mycenaean Art and Archaeology (4)** (Same as Classics M153B.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture in Mycenaean Greece from circa 2000 to 1000 BC. P/NP or letter grading.

**112B. Archaic Greek Art and Archaeology (4)** (Same as Classics M153C.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture of Greek world from approximately 800 through 490 BC. P/NP or letter grading.

**112C. Classical Greek Art and Archaeology (4)** (Same as Classics M153D.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture of Greek world from approximately 490 through 350 BC. P/NP or letter grading.

**112D. Hellenistic Greek Art and Archaeology (4)** (Same as Classics M153E.) Lecture, three hours. Requisite: course 20 or Classics 10 or 51A. Study of development of art and architecture of Greek world from middle of 4th century BC, including transmittal of Greek art forms to Romans. P/NP or letter grading.

**113A. Etruscan Art and Archaeology (4)** (Same as Classics M153F.) Lecture, three hours. Requisite: course 20 or Classics 20 or 51B. Arts of Italic peninsula from circa 1000 BC. to end of Roman Republic. P/NP or letter grading.

**113B. Roman Art and Archaeology (4)** (Same as Classics M153G.) Lecture, three hours. Requisite: course 20 or Classics 20 or 51B. Art and architecture of Rome and its Empire from circa 300 BC to AD 300. P/NP or letter grading.

**113C. Late Roman Art (4)** (Same as Classics M153H.) Lecture, three hours. Requisite: course 20 or Classics 20 or 51B. Art of Roman Empire from 2nd through 4th century (AD). P/NP or letter grading.

**114A. Classical Archaeology: Greco-Roman Architecture (4)** (Same as Classics M153I.) Lecture, three hours. Requisite: one course from 20, Classics 10, 20, 51A, 51B, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading.

**114B. Classical Archaeology: Greco-Roman Sculpture (4)** (Same as Classics M153J.) Lecture, three hours. Requisite: one course from 20, Classics 10, 20, 51A, 51B, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading.

**114C. Classical Archaeology: Greco-Roman Painting (4)** (Same as Classics M153K.) Lecture, three hours. Requisite: one course from 20, Classics 10, 20, 51A, 51B, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading.

**C114D. Selected Topics in Ancient Art (4)** Lecture, three hours. Variable topics in ancient art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C214D. P/NP or letter grading.

**CM115A. Late Antique Art and Architecture (4)** (Same as Classics M153L.) Lecture, three hours. Art and architecture of late Roman Empire and early Christian world. Concurrently scheduled with course C215A. P/NP or letter grading.

**C115B. Early Medieval Art and Architecture (4)** Lecture, three hours. Requisite: course 21. Art and architecture of Western Europe from Migration period until AD 1000. Concurrently scheduled with course C215B. P/NP or letter grading.

**115C. Romanesque Art and Architecture (4)** Lecture, three hours. Requisite: course 21. Art and architecture of Western Europe in 11th and 12th centuries. P/NP or letter grading.

**C115D. Gothic Art and Architecture (4)** Lecture, three hours. Art and architecture of Europe in 13th century. Concurrently scheduled with course C215D. P/NP or letter grading.

**115E. Late Gothic Art and Architecture (4)** Lecture, three hours. Strongly recommended preparation: course 21. Art and architecture of Europe in 14th and early 15th centuries. P/NP or letter grading.

**C115F. Medieval Paris (4)** Lecture, three hours. Enforced requisite: course 21. Material culture, art, architecture, and history of city of Paris to circa 1500. Concurrently schedule with course C215F. P/NP or letter grading.

**C116A. Middle Byzantine Art and Architecture (4)** Lecture, three hours. Requisite: course 21. Theory and development of Byzantine art from iconoclastic controversy to 1204. Concurrently scheduled with course C216A. P/NP or letter grading.

**C116B. Late Byzantine Art and Architecture (4)** Lecture, three hours. Theory and development of Byzantine art from 1204 to 1453. Concurrently scheduled with course C216B. P/NP or letter grading.

**C117A. Medieval Archaeology (4)** Lecture, three hours. Archaeology of medieval world. Concurrently scheduled with course C217A. P/NP or letter grading.

**C117B. Selected Topics in Medieval Art (4)** Lecture, three hours. Variable topics in medieval art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C217B. P/NP or letter grading.

**118A. Medieval Armenian Art (4)** (Same as Armenian M172.) Lecture, three hours. Examination of cultural and historical impact of Armenian miniature paintings. P/NP or letter grading.

**118B. Armenian Painting, 17th to 20th Century (4)** (Same as Armenian M173.) Lecture, three hours. Overview of development of modern Armenian painting out of its matrix in 17th and 18th centuries. P/NP or letter grading.

**C118C. Selected Topics in Armenian Art (4)** Lecture, three hours. Variable topics in Armenian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C218. P/NP or letter grading.

**119A. Western Islamic Art (4)** Lecture, three hours. From Tigris and Euphrates Rivers to Spain, 7th to 16th century. P/NP or letter grading.

**119B. Eastern Islamic Art (4)** Lecture, three hours. From Tigris and Euphrates Rivers through Afghanistan and parts of central Asia; Ottoman Empire. P/NP or letter grading.

**119C. Introduction to Islamic Archaeology (4)** (Same as Islamic Studies M111 and Middle Eastern Studies M111.) Lecture, three hours. From earliest monuments of Islam in Arabia and Jerusalem to humble remains of small Egyptian port, broad focus on archaeological and standing remains in central Islamic lands (primarily Syria, Egypt, and Iraq), Turkey, Iran, North Africa, and Spain. Profound cultural transformations occurred from birth of Islam in 7th century to early Ottoman period in 16th and 17th centuries, which are traceable in material records. Assessment of effectiveness of tools afforded by historical archaeology to aid understanding of past societies. P/NP or letter grading.

**119D. Archaeology and Art of Christian and Islamic Egypt (4)** (Same as Archaeology M112, Islamic Studies M112, and Middle Eastern Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century CE. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

**C120. Selected Topics in Islamic Art (4)** Lecture, three hours. Variable topics in Islamic art and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C220A. P/NP or letter grading.

**121A. Italian Renaissance Art of 14th Century (4)** Lecture, three hours. Art and architecture of 14th century. P/NP or letter grading.

**121B. Italian Renaissance Art of 15th Century (4)** Lecture, three hours. Art and architecture of 15th century. P/NP or letter grading.

**121C. Italian Renaissance Art of 16th Century (4)** Lecture, three hours. Art and architecture of 16th century. P/NP or letter grading.

**121D. Late Renaissance Art: Counter-Reformation (4)** Lecture, three hours. Requisite: course 22. Painting, sculpture, and architecture of late 16th and early 17th centuries considered in context of Counter-Reformation. P/NP or letter grading.

**124. Northern Renaissance Art (4)** Lecture, three hours. Requisite: course 22. Painting and sculpture in Northern Renaissance. P/NP or letter grading.

**C125A. Southern Baroque Art (4)** Lecture, three hours. Art and architecture of Spain or Italy, 16th to late 17th century. Concurrently scheduled with course C225. P/NP or letter grading.

**125B. Northern Baroque Art (4)** Lecture, three hours. Requisite: course C125A. Art and architecture of Northern Europe, 16th to late 17th century. P/NP or letter grading.

**C126. Selected Topics in Early Modern Art (4)** Lecture, three hours. Variable topics in early modern art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C226. P/NP or letter grading.

**127A. European Art of 17th and 18th Centuries (4)** Lecture, three hours. Requisite: one course from course 20 through 31. Examination of art and visual culture of 17th and 18th centuries in light of political and intellectual developments. Special emphasis on effects of royal courts, colonialism, and revolution. P/NP or letter grading.

**127B. European Art of 19th Century (4)** Lecture, three hours. Requisite: course 23. Neoclassicism and Romanticism, with emphasis on France—development and influence of David, Ingres, and Delacroix. P/NP or letter grading.

#### **127C. Cultural and Intellectual History of Modern Europe, 19th Century (4)**

(Same as History M122E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

**C128A. History of Photography, 1839 to 1910 (4)** Lecture, three hours. Study of origin, social functions, and development of photography in 19th and early 20th centuries, from Niépce to Atget. Concurrently scheduled with course C228A. P/NP or letter grading.

**C128B. History of Photography, 1910 to Present (4)** Lecture, three hours; discussion, one hour. History of photography in 20th century, with special attention to photography's entrance into project of avant-garde and its role in formation of postmodern aesthetic. Concurrently scheduled with course C228B. P/NP or letter grading.

**C128C. History of Photography: Selected Topics (4)** Lecture, three hours. Variable topics in history of photography that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C228C. P/NP or letter grading.

**C129A. Modern Art, 1900 to 1950 (4)** Lecture, three hours. Inquiry into 20th-century modernism from Fauvism to abstract expressionism. Topics include primitivism, gender, and sexuality in modernist art; origins of abstraction, collage, photomontage, and ready-made; rise of automatism and chance procedures; art, utopia, and political revolution; antimodernism and fascism; mass culture, machine paradigm, and work of art in age of mechanical reproduction. Concurrently scheduled with course C229A. P/NP or letter grading.

**C129B. Dada, 1915 to 1923 (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction to modernism and historical avant-garde of early 20th century, tracing in detail emergence of Dada avant-garde in its various geographical locales during and after World War I. Visual art, literature, film, and performance addressed, with special attention to invention of series of avant-garde strategies crucial to Dada: ready-made, chance procedures, mechanical drawing, and photomontage. Concurrently scheduled with course C229B. P/NP or letter grading.

**C129C. Surrealism, 1924 to 1939 (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of art, literature, and film associated with surrealist movement in France, with special attention to dissident surrealism of writer and philosopher Georges Bataille, as well as to challenge to art history posed by surrealism's engagement with lessons of psychoanalysis. Concurrently scheduled with course C229C. P/NP or letter grading.

**130. Selected Topics in Modern Art (4)** Lecture, three hours. Requisite: course 23. Changing topics in modern art (post-1780) that reflect interests of individual regular and visiting faculty members. May be repeated once for credit. P/NP or letter grading.

**C131A. Contemporary Art, 1940s to 1950s (4)** Lecture, three hours. Requisite: course 23. Study of major artistic and cultural trends following World War II in U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C231A. P/NP or letter grading.

**C131B. Contemporary Art, 1960s to 1970s (4)** Lecture, three hours. Requisite: course 23. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C231B. P/NP or letter grading.

**C131C. Contemporary Art, 1980s to 1990s (4)** Lecture, three hours; discussion, one hour. Requisite: course 23. Study of politics of representation at end of century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C231C. P/NP or letter grading.

**132. Selected Topics in Contemporary Art (4)** Lecture, three hours. Requisite: course 23. Changing topics in contemporary art (post-1945) that reflect interests of individual regular and/or visiting faculty members. May be repeated once for credit. P/NP or letter grading.

**C133A. American Art before Civil War (4)** Lecture, three hours. Painting, sculpture, and architecture in U.S. from Colonial period through Civil War. Concurrently scheduled with course C233A. P/NP or letter grading.

**C133B. American Art in Gilded Age, 1860 to 1900 (4)** Lecture, three hours. Painting, sculpture, and architecture in U.S. from Civil War to turn of century. Concurrently scheduled with course C233B. P/NP or letter grading.

**C133C. American Art, 1900 to 1945 (4)** Lecture, three hours. Painting, sculpture, and photography in U.S. from 1900 to 1945. Concurrently scheduled with course C233C. P/NP or letter grading.

**133D. Architecture in U.S. (4)** Lecture, three hours; discussion, one hour. Introduction to architecture built in U.S. over last 5,000 years. Architecture as vehicle for political and cultural authority, citizenship, ethnic and social identity; its role in defining place and our relationship to natural environment and

as vehicle for asserting human control over natural world; its place in world of work and commerce; and its status as professional and aesthetic pursuit. P/ NP or letter grading.

**133E. American Houses (4)** Lecture, three hours. Many historians consider single-family houses to be one of two most American contributions to world architecture (next to skyscrapers). Examination of this claim critically by placing single-family houses in broader context of varied dwellings built and occupied by residents of present-day U.S. over last 500 years, including both aesthetically ambitious houses and ordinary (or vernacular) ones, houses of indigenous groups and those of immigrants of many sorts, urban and rural houses, and single-family houses and multiple dwellings of all sorts. Offers ways to think about houses we occupy and to understand how they relate to major themes in history of American architecture. P/NP or letter grading.

**CM135A. African American Art before 1900 (4)** (Same as African American Studies CM135A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM235A. P/NP or letter grading.

**CM135B. African American Art, 1900 to 1963 (4)** (Same as African American Studies CM135B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM235B. P/NP or letter grading.

**C136A. Selected Topics in African American Art (4)** Lecture, three hours. Variable topics in African American art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C236A. P/NP or letter grading.

**137. Arts of Native North America (4)** Lecture, three hours. Survey of painting, sculpture, and other arts from Inuit to peoples of Caribbean and Southwestern U.S. P/NP or letter grading.

**CM139A. Maya Art and Architecture (4)** (Same as Chicana/o and Central American Studies M137.) Lecture, three hours. Requisite: course 27. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 BC to Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course C239A. P/NP or letter grading.

**C139B. Aztec Art and Architecture (4)** Lecture, three hours. Requisite: course 27. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C239B. P/ NP or letter grading.

**C139C. Inca Art and Architecture (4)** Lecture, three hours. Exploration of art, architecture, and urbanism of Incas from their empire's height in late 15th century to their political and cultural fragmentation during Spanish occupation of Andes (1532 to 1824). Concurrently scheduled with course C239C. P/NP or letter grading.

**C140. Selected Topics in Arts of Indigenous Americas (4)** Lecture, three hours. Variable topics in artistic production of Native people across Americas that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C240A. P/ NP or letter grading.

**CM141. Colonial Latin American Art (4)** (Same as Chicana/o and Central American Studies M187B.) Lecture, three hours; discussion, one hour (when scheduled). Art and architecture of colonial Americas from 16th to 18th century. Concurrently scheduled with course C241. P/NP or letter grading.

**C142A. Mexican Art in Modern Age (4)** Lecture, three hours. Mexican art of 19th and 20th centuries, from foundation of academy in 1785 to present day. Study of art and revolution, muralism, surrealism, indigenism, postcolonialism, and postmodernism in painting, sculpture, prints, photography, and architecture. Concurrently scheduled with course C242A. P/NP or letter grading.

**C142B. Latin American Art of 20th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Mainstream modern and contemporary art and architecture of selected Latin American countries, including both modernist and postmodernist forms, considered in context of social and political concerns, both national and international. Concurrently scheduled with course C242B. P/NP or letter grading.

**143. Selected Topics in Latin American Art (4)** Lecture, three hours. Variable topics in Latin American art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. P/NP or letter grading.

**144. Caribbean Art (4)** Lecture, three hours. Cultural history of Caribbean. P/ NP or letter grading.

**C145A. Architecture and Urbanism in Africa (4)** Lecture, three hours. Survey of African built environment at various moments and in different places from about 200 CE to present, with emphasis on cultural, social, and historical contexts of architecture, gender, and space, and contemporary African cities. Concurrently scheduled with course C245A. P/NP or letter grading.

**C145B. Contemporary Arts of Africa (4)** Lecture, three hours; discussion, one hour (when scheduled). Survey of African visual practices since mid-20th century, with special emphasis on changing meaning of art object, status of African artist, global reception of contemporary African art, and very definitions of contemporary African art. Concurrently scheduled with course C245B. P/ NP or letter grading.

**C146A. Selected Topics in African Art (4)** Lecture, three hours. Variable topics in African art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C246A. P/NP or letter grading.

**147. Arts of Oceania (4)** Lecture, three hours. Requisite: course 28. Survey of arts of major island groupings of Pacific, emphasizing style-regions and broad historical relationships. P/NP or letter grading.

**C148A. Art and Material Culture, Neolithic to 210 BC (4)** Lecture, three hours; discussion, one hour. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). Concurrently scheduled with course C248A. P/NP or letter grading.

**C148B. Art and Material Culture of Early Imperial China, 210 BC to AD 906 (4)** Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. Concurrently scheduled with course C248B. P/NP or letter grading.

**C148C. Art and Material Culture of Late Imperial China, 906 to 1911 (4)** Lecture, three hours. Secular and religious (Buddhist and Taoist) architecture, painting, sculpture, and various luxury industries (lacquer, porcelain, textiles, jade, bronze, furniture, wood and bamboo carving, etc.). Concurrently scheduled with course C248C. P/NP or letter grading.

**C148D. Advanced Chinese Art (4)** Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C248D. P/NP or letter grading.

**C148E. Art in Modern China (4)** Lecture, three hours. Concentrated look at major schools and masters of Chinese art from turn of 20th century to present, with focus on interaction with foreign cultures and issues of self-identity, assimilation, modernity, tradition, and continuity. Consideration of recent developments in Chinese art in global context. Concurrently scheduled with course C248E. P/NP or letter grading.

**C148F. Advanced Chinese Painting (4)** Lecture, three hours. Examination of classical painting of imperial China through theory and practice. Concurrently scheduled with course C248F. P/NP or letter grading.

**C148G. Gardens in Chinese Art and Culture (4)** Lecture, three hours; discussion, one hour. Overview of practice, theory, and representation of Chinese gardens in their historical, philosophical, artistic, social, and cultural contexts through literary writings, paintings, and aspects of material culture. Concurrently scheduled with course C248G. P/NP or letter grading.

**C149. Selected Topics in Chinese Art (4)** Lecture, three hours. Variable topics in Chinese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C249A. P/NP or letter grading.

**150A. Japanese Art (4)** Lecture, three hours. Not open to freshmen. Japanese art from its beginning in prehistory through 19th century. Emphasis on development of Buddhist art and its relationship with culture. P/NP or letter grading.

**C150B. Advanced Japanese Art (4)** Lecture, three hours. Requisite: course 150A. Study in Japanese painting and sculpture. Concurrently scheduled with course C250. P/NP or letter grading.

**C151. Selected Topics in Japanese Art (4)** Lecture, three hours; discussion, one hour (when scheduled). Variable topics in Japanese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C251A. P/NP or letter grading.

**152A. Arts of Korea (4)** Lecture, three hours; museum field trip. Introduction to arts and archaeology on Korean peninsula from Neolithic beginnings to early 20th century through analysis and discussion of selection of monuments and objects within technological, stylistic, religious, cultural, and sociopolitical contexts. Examination of construction of concepts of history and art under colonial and nationalist perspectives, with regard to historical and contemporary East Asian cultural and political interrelations. P/NP or letter grading.



**C152B. History of Korean Painting (4)** Lecture, three hours. Limited to juniors/seniors. Korean painting history from Three Kingdoms period to 19th century, examined within cultural and sociopolitical contexts. Special emphasis on diversity of topics and social status of artists during Choson dynasty (1392 to 1910). Concurrently scheduled with course C252A. P/NP or letter grading.

**C152C. History of Korean Ceramics (4)** Lecture, three hours. Limited to juniors/seniors. History of Korean ceramics from Neolithic period to 19th century, with special emphasis on technological and stylistic developments. Concurrently scheduled with course C252B. P/NP or letter grading.

**C152D. History of Korean Buddhist Art (4)** Lecture, three hours. Limited to juniors/seniors. History of Korean Buddhist art from Three Kingdoms period to Choson dynasty, with special emphasis on Buddhist iconography and relationship between sculpture, painting, and architecture. Concurrently scheduled with course C252C. P/NP or letter grading.

**C153. Selected Topics in Korean Art (4)** Lecture, three hours. Limited to juniors/seniors. Variable topics in Korean art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C253A. P/NP or letter grading.

**154A. Early Art of India (4)** Lecture, three hours. Not open to freshmen. Survey of Indian art from Indus Valley cultures to 10th century. Emphasis on Buddhist and Hindu backgrounds of arts. P/NP or letter grading.

**154B. Later Art of India (4)** Lecture, three hours. Not open to freshmen. Survey of Indian art from 10th to 19th century. Decline of Buddhist art, last efflorescence of Hindu architecture, Muslim painting and architecture, and Rajput painting. P/NP or letter grading.

**C154C. Advanced Indian Art (4)** Lecture, three hours. Prerequisite: course 154A. Study in Indian sculpture and architecture. Concurrently scheduled with course C254A. P/NP or letter grading.

**154D. Modern and Contemporary South Asian Art (4)** Lecture, three hours; discussion, one hour (when scheduled). Topics in modern and contemporary South Asian art from 1900 to present. P/NP or letter grading.

**C155. Selected Topics in South and Southeast Asian Art (4)** Lecture, three hours. Variable topics in South and Southeast Asian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C255A. P/NP or letter grading.

**156. Arts of Southeast Asia (4)** Lecture, three hours. Not open to freshmen. Southeast Asian art from its beginning in prehistory through 19th century. Study of art of selected cultures from Burma, Malaysia, Thailand, Cambodia, Vietnam, and Indonesia. P/NP or letter grading.

**C158A. Selected Topics in Asian Arts and Architecture (4)** Lecture, three hours. Variable topics in Asian arts and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C258A. P/NP or letter grading.

**C160. Art and Empire (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of relationship between art and imperial ideologies and introduction to current issues in colonial studies and postcolonial criticism. Concurrently scheduled with course C260A. P/NP or letter grading.

**161. Cities in History (4)** Lecture, three hours; discussion, one hour. Examination of history of cities worldwide, locating cities in their aesthetic, social, cultural, and symbolic contexts. History of cities from origins of urbanism to present, with focus on recent centuries. P/NP or letter grading.

**C169. Selected Topics in Architectural History (4)** Lecture, three hours. Variable topics in architectural history that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C269. P/NP or letter grading.

**C170A. Museum Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction to museology as critical practice, with emphasis on history and theory of museums and impact of culture and society on current museum theory and practice. Concurrently scheduled with course C270A. P/NP or letter grading.

**C170B. Museum Studies Practicum. (2 to 4)** Lecture, three hours. On-site examination and discussion of selected artworks, exhibitions, and associated published and distributed materials, and of museum and gallery institutions, practices, and policies. Concurrently scheduled with course C270B. Letter grading.

**C171. Selected Topics in Museum Studies (4)** Seminar, three hours. Variable topics in museum studies that reflect interests of individual regular and/or visiting faculty members. May be repeated for credit with topic change. Concurrently scheduled with course C271. P/NP or letter grading.

**C172A. Preservation of Art (4)** Lecture, three hours. Designed for Anthropology and Art History majors and other juniors/seniors. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Dis-

cussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values, illustrating how cultural materials may have been treated differently according to those values. Concurrently scheduled with course C272A. P/NP or letter grading.

**C172B. Art: Fakes, Forgeries, and Authenticity (4)** Lecture, three hours. Examination of concepts of authenticity, originality, fakes, and forgeries in art. Overview of problems inherent in concept of authenticity and description of many examples of problems related to this concept in series of discussions based on objects from variety of cultures. Introduction to subject of fakes and account of three different areas of connoisseurship that are essential component of production, study, and scientific examination of fakes. Nature of art connoisseurship described in many examples from Renaissance and earlier panel paintings, as well as antiquities and traditional African arts. Background of art restoration and art conservation discussed in relationship to authenticity and technical studies. Scientific tools that form basis of another kind of connoisseurship described in terms of dating techniques that can be applied directly to works of art and technical methods by which material constituents of works of art are studied. Concurrently scheduled with course C272C. P/NP or letter grading.

**179. Cultural Heritage and Identity Representation: Creating Fowler and Virtual Exhibit (4)** (Same as Ancient Near East M179.) Lecture, three hours; discussion, one hour. Exploration of what it takes to run museum and create exhibit. Introduction to different types of museum work, ranging from collecting and curation, to research, conservation, presentation, visitor experience, and management. Students jointly create exhibit based on Fowler Museum collection. Students research and discuss context and different stakeholders that relate to material under consideration. Consideration of narrative exhibit and how objects and their arrangement convey deliberate or accidental messages. Consideration of audiences as well as original context of each object. Focus on people behind objects, technologies, or material characteristics. P/NP or letter grading.

**185. Undergraduate Seminar (4)** Seminar, three hours. Designed for juniors/seniors. Selected aspects of art history explored through readings, discussion, research papers, and oral presentations. May be repeated twice for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Museum Studies Internship (3)** Tutorial, five hours; fieldwork, four hours. Prerequisite: course C170A. Limited to junior/senior Art History majors. Internship in supervised setting at participating host museum at UCLA or in greater Los Angeles area. Participation in ongoing museum projects and operations, with specific work to be determined by host institution in consultation with faculty mentor. Curatorial, educational, communications, public relations, and development work may be included, as well as assistance at public programs

and related events. Students meet on regular basis with faculty mentor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty mentor required. P/NP grading.

**196. Research Apprenticeship in Art History. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP or letter grading.

**197A. Individual Studies in Art History. (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual intensive study for majors, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Eight units may be applied toward major. Individual contract required. P/NP or letter grading.

**197B. Individual Capstone Studies (2)** Tutorial, two hours. Limited to departmental junior/senior majors and minors. Guided study led by faculty supervisor. Instructor meets with student to help design culminating capstone project so it conforms to departmental capstone project guidelines. Must be taken in conjunction and concurrently with one upper-division departmental course. May not be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Art History (4)** Tutorial, to be arranged. Preparation: completion of minimum of four upper-division art history courses with 3.5 departmental grade-point average and overall 3.0 grade-point average. Limited to junior/senior Art History and History/Art History majors. Two-term independent research project under supervision of appropriate faculty member, culminating in departmental honors thesis of approximately 30 pages. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Art History (4)** Tutorial, to be arranged. Preparation: completion of minimum of four upper-division art history courses with 3.5 departmental grade-point average and overall 3.0 grade-point average. Limited to junior/senior Art History and History/Art History majors. Two-term independent research project under supervision of appropriate faculty member, culminating in departmental honors thesis of approximately 30 pages. Individual contract required. Letter grading.

**199. Directed Research in Art History. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Art Historical Theories and Methodologies (4)** Seminar, three hours. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts from antiquity to present. May be repeated for credit with consent of adviser. S/U or letter grading.

**201. Topics in Historiography of Art History (4)** Seminar, three hours. Critical examination of historiographic traditions of specific areas and fields within discipline of art history, concentrating on particular time periods, geographical areas, artistic traditions, or work of one or more authors. May be repeated for credit with consent of adviser. S/U or letter grading.

**202. Topics in Theory and Criticism in Art History (4)** Seminar, three hours. Focused studies of various theoretical and critical traditions within art history, concentrating on particular issues, authors, or methodologies either within or across historical and cultural areas. May be repeated for credit with consent of adviser. S/U or letter grading.

**203. Topics in Architectural History and Theory (4)** Seminar, three hours. Focused studies of various theoretical and critical traditions within architectural history, concentrating on particular issues, authors, or methodologies either within or across historical, geographic, and cultural areas. May be repeated for credit with consent of adviser. S/U or letter grading.

**207. Consortium Scholar Seminar at Getty Research Institute (4)** Seminar, three hours. Intramural graduate seminar at Getty Museum in collaboration with Getty Research Institute. Instructors, topics, and format vary. S/U or letter grading.

**210. Egyptian Art (4)** Seminar, two hours. Requisites: courses M110A, M110B, M111. Art in Egypt during Late period and Greco-Roman period. Students should be ready to prepare for every meeting briefing of topic from archaeological memoirs, not to exceed 10 minutes. Some lectures. May be repeated for credit with consent of adviser. S/U or letter grading.

**212A. Topics in Aegean Art (4)** Seminar, two hours. Requisites: courses M111, M112A. Art and architecture of Aegean Bronze Age (3000 to 1000 BC). Monuments or theoretical problems related to art and culture of Crete, Greece, Cyclades, or Western Anatolia. May be repeated for credit with consent of adviser. S/U or letter grading.

**212B. Topics in Classical Art (4)** Seminar, two to three hours. Studies in Parthian art. Site-by-site survey of Near East (Afghanistan, Iran, Iraq, Syria) during period of Greek and Parthian control. May be repeated for credit with consent of adviser. S/U or letter grading.

**212C. Classical Art (4)** Seminar, two hours. Studies in Greco-Roman art and archaeology. Studies of specific periods, sites, or artistic media. May be repeated for credit with consent of adviser. S/U or letter grading.

**C214D. Selected Topics in Ancient Art (4)** Lecture, three hours. Variable topics in ancient art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C114D. S/U or letter grading.

**C215A. Late Antique Art and Architecture (4)** Lecture, three hours. Art and architecture of late Roman Empire and early Christian world. Concurrently scheduled with course CM115A. S/U or letter grading.

**C215B. Early Medieval Art and Architecture (4)** Lecture, three hours. Requisite: course 21. Art and architecture of Western Europe from Migration period until AD 1000. Concurrently scheduled with course C115B. S/U or letter grading.

**C215D. Gothic Art and Architecture (4)** Lecture, three hours. Art and architecture of Europe in 13th century. Concurrently scheduled with course C115D. S/U or letter grading.

**C215F. Medieval Paris (4)** Lecture, three hours. Enforced requisite: course 21. Material culture, art, architecture, and history of city of Paris to circa 1500. Concurrently schedule with course C115F. S/U or letter grading.

**C216A. Middle Byzantine Art and Architecture (4)** Lecture, three hours. Requisite: course 21. Theory and development of Byzantine art from iconoclastic controversy to 1204. Concurrently scheduled with course C116A. S/U or letter grading.

**C216B. Late Byzantine Art and Architecture (4)** Lecture, three hours. Theory and development of Byzantine art from 1204 to 1453. Concurrently scheduled with course C116B. S/U or letter grading.

**C217A. Medieval Archaeology (4)** Lecture, three hours. Archaeology of medieval world. Concurrently scheduled with course C117A. S/U or letter grading.

**C217B. Selected Topics in Medieval Art (4)** Lecture, three hours. Variable topics in medieval art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C117B. S/U or letter grading.

**217C. Medieval Art (4)** Seminar, two hours. Studies in selected topics in Byzantine and European medieval art. May be repeated for credit with consent of adviser. S/U or letter grading.

**217D. Byzantine Art, Architecture, and Archaeology (4)** Seminar, two hours. Selected topics in Byzantine art and architecture. May be repeated for credit with consent of adviser. S/U or letter grading.

**C218. Selected Topics in Armenian Art (4)** Lecture, three hours. Variable topics in Armenian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C118C. S/U or letter grading.

**C220A. Selected Topics in Islamic Art (4)** Lecture, three hours. Variable topics in Islamic art and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C120. S/U or letter grading.

**220B. Advanced Studies in Islamic Art (4)** Seminar, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser. S/U or letter grading.

**222A. Italian Renaissance Art (4)** Seminar, two hours. Preparation: knowledge of Italian. Study of various aspects of Leonardo's theoretical approach to art in terms of sources and impact on followers. May be repeated for credit with consent of adviser. S/U or letter grading.

**224A. Northern Renaissance Art (4)** Seminar, two hours. Preparation: knowledge of German. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. May be repeated for credit with consent of adviser. S/U or letter grading.

**C225. Southern Baroque Art (4)** Lecture, three hours. Art and architecture of Spain or Italy, 16th to late 17th century. Concurrently scheduled with course C125A. S/U or letter grading.

**225B. Early Modern Art (4)** Seminar, three hours. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. Language requirements depend on area of focus. May be repeated for credit with consent of adviser. S/U or letter grading.

**C226. Selected Topics in Early Modern Art (4)** Lecture, three hours. Variable topics in early modern art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C126. S/U or letter grading.

**C228A. History of Photography, 1839 to 1910 (4)** Lecture, three hours. Study of origin, social functions, and development of photography in 19th and early 20th centuries, from Niépce to Atget. Concurrently scheduled with course C128A. S/U or letter grading.

**C228B. History of Photography, 1910 to Present (4)** Lecture, three hours; discussion, one hour. History of photography in 20th century, with special attention to photography's entrance into project of avant-garde and its role in formation of postmodern aesthetic. Concurrently scheduled with courses C128B. S/U or letter grading.

**C228C. History of Photography: Selected Topics (4)** Lecture, three hours. Variable topics in history of photography that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C128C. S/U or letter grading.

**228D. History and Theory of Photography (4)** Seminar, three hours. Selected topics in photography history, criticism, and theory. S/U or letter grading.

**C229A. Modern Art, 1900 to 1950 (4)** Lecture, three hours; discussion, one hour. Inquiry into 20th-century modernism from Fauvism to abstract expressionism. Topics include primitivism, gender, and sexuality in modernist art; origins of abstraction, collage, photomontage, and ready-made; rise of automatism and chance procedures; art, utopia, and political revolution; antimodernism and fascism; mass culture, machine paradigm, and work of art in age of mechanical reproduction. Concurrently scheduled with course C129A. S/U or letter grading.

**C229B. Dada, 1915 to 1923 (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction to modernism and historical avant-garde of early 20th century, tracing in detail emergence of Dada avant-garde in its various geographical locales during and after World War I. Visual art, literature, film, and performance addressed, with special attention to invention of series of avant-garde strategies crucial to Dada: ready-made, chance procedures, mechanical drawing, and photomontage. Concurrently scheduled with course C129B. S/U or letter grading.

**C229C. Surrealism, 1924 to 1939 (4)** Lecture, three hours; discussion, one hour (when scheduled). Study of art, literature, and film associated with surrealist movement in France, with special attention to dissident surrealism of writer and philosopher Georges Bataille, as well as to challenge to art history posed by surrealism's engagement with lessons of psychoanalysis. Concurrently scheduled with course C129C. S/U or letter grading.

**230A. European Art, 1700 to 1900 (4)** Seminar, two hours. May be repeated for credit with consent of adviser. S/U or letter grading.

**230B. Seminar: Modern European History (4)** (Same as History M230A.) Seminar, three hours. Course M230B is enforced requisite to M230C. May be repeated for credit with consent of adviser. In Progress grading (credit to be given only on completion of course M230C).

**230C. Seminar: Modern European History (4)** (Same as History M230B.) Seminar, three hours. Enforced requisite: course M230B. May be repeated for credit with consent of adviser. Letter grading.

**230D. Modern Art (4)** Seminar, two hours. Changing topics in modern art (including illustration and other popular forms) that reflect interests of particular faculty members. Political and economic factors affecting arts of France and Germany at various times. May be repeated for credit with consent of adviser. S/U or letter grading.

**C231A. Contemporary Art, 1940s to 1950s (4)** Lecture, three hours. Requisite: course 23. Study of major artistic and cultural trends following World War II in U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C131A. S/U or letter grading.

**C231B. Contemporary Art, 1960s to 1970s (4)** Lecture, three hours. Requisite: course 23. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C131B. S/U or letter grading.

**C231C. Contemporary Art, 1980s to 1990s (4)** Lecture, three hours; discussion, one hour. Requisite: course 23. Study of politics of representation at end of century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C131C. S/U or letter grading.

**232. Contemporary Art (4)** Seminar, three hours. Selected topics in contemporary art, criticism, and theory. S/U or letter grading.

**C233A. American Art before Civil War (4)** Lecture, three hours. Painting, sculpture, and architecture in U.S. from Colonial period through Civil War. Concurrently scheduled with course C133A. S/U or letter grading.

**C233B. American Art in Gilded Age, 1860 to 1900 (4)** Lecture, three hours. Painting, sculpture, and architecture in U.S. from Civil War to turn of century. Concurrently scheduled with course C133B. S/U or letter grading.

**C233C. American Art, 1900 to 1945 (4)** Lecture, three hours. Painting, sculpture, and photography in U.S. from 1900 to 1945. Concurrently scheduled with course C133C. S/U or letter grading.

**234. American Art (4)** Seminar, two hours. Requisite: course C233A or C233B or C233C, depending on topic. Topics in American art from Colonial period to present. Discussion of weekly readings, student oral presentations, and papers. May be repeated for credit with consent of adviser. S/U or letter grading.

**CM235A. African American Art before 1900 (4)** (Same as African American Studies CM235A.) Lecture, three hours. Detailed inquiry into work to circa 1900 of African American artists whose works provide insightful and critical commentary about major features of American life and society. Concurrently scheduled with course CM135A. S/U or letter grading.

**CM235B. African American Art, 1900 to 1963 (4)** (Same as African American Studies CM235B.) Lecture, three hours. Detailed inquiry into work of African American artists from Columbian Exposition to 1963 March on Washington within context of social, political, and cultural engagement, as well as in codification of modern black life in U.S. Concurrently scheduled with course CM135B. S/U or letter grading.

**236. Topics in African American Art (4)** (Same as African American Studies M256.) Seminar, three hours. Requisite: course CM235A or CM235B. Topics in African American art from 18th century to present. May be repeated for credit with consent of graduate adviser. S/U or letter grading.

**C236A. Selected Topics in African American Art (4)** Lecture, three hours. Variable topics in African American art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C136A. S/U or letter grading.

**237. Native North American Art (4)** Seminar, three hours. Studies in selected topics in art of American Indians. May be repeated for credit with consent of adviser. S/U or letter grading.

**C239A. Maya Art and Architecture (4)** Lecture, three hours. Requisite: course 27. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 BC to Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course CM139A. S/U or letter grading.

**C239B. Aztec Art and Architecture (4)** Lecture, three hours. Requisite: course 27. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C139B. S/U or letter grading.

**C239C. Inca Art and Architecture (4)** Lecture, three hours. Exploration of art, architecture, and urbanism of Incas from their empire's height in late 15th century to their political and cultural fragmentation during Spanish occupation of Andes (1532 to 1824). Concurrently scheduled with course C139C. S/U or letter grading.

**C240A. Selected Topics in Arts of Indigenous Americas (4)** Lecture, three hours. Variable topics in artistic production of Native people across Americas that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C140. P/NP or letter grading.

**240B. Art and Architecture of Indigenous Americas (4)** Seminar, three hours. Studies in selected topics in artistic production of Native people across Americas. May be repeated for credit with consent of adviser. S/U or letter grading.

**C241. Colonial Latin American Art (4)** Lecture, three hours; discussion, one hour (when scheduled). Art and architecture of colonial Americas from 16th to 18th century. Concurrently scheduled with course CM141. S/U or letter grading.

**C242A. Mexican Art in Modern Age (4)** Lecture, three hours. Mexican art of 19th and 20th centuries, from foundation of academy in 1785 to present day. Study of art and revolution, muralism, surrealism, indigenism, postcolonialism, and postmodernism in painting, sculpture, prints, photography, and architecture. Concurrently scheduled with course C142A. S/U or letter grading.

**C242B. Latin American Art of 20th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Mainstream modern and contemporary art and architecture of selected Latin American countries, including both mod-

ernist and postmodernist forms, considered in context of social and political concerns, both national and international. Concurrently scheduled with course C142B. S/U or letter grading.

**243. Hemispheric and Transnational Approaches to Contemporary Art in Americas (4)** (Same as Chicana/o and Central American Studies M237.) Seminar, three hours. Maps current state and future of research, teaching, and museum practice in contemporary art of Americas, with focus on hemispheric and transnational approaches. Study of influential theoretical texts from literary studies and critical examination of recent publications in arts, including museum exhibition catalog, as hemispheric and transnational approach to contemporary Latinx and Latin American arts is posited. Focus intersects with other related topics, including art post-1968; comparative indigenities in Americas; art, globalism, and biennials; decolonial turn; transnational feminisms; and New American counter narratives. S/U or letter grading.

**C245A. Architecture and Urbanism in Africa (4)** Lecture, three hours. Survey of African built environment at various moments and in different places from about 200 CE to present, with emphasis on cultural, social, and historical contexts of architecture, gender, and space, and contemporary African cities. Concurrently scheduled with course C145A. S/U or letter grading.

**C245B. Contemporary Arts of Africa (4)** Lecture, three hours; discussion, one hour (when scheduled). Survey of African visual practices since mid-20th century, with special emphasis on changing meaning of art object, status of African artist, global reception of contemporary African art, and very definitions of contemporary African art. Concurrently scheduled with course C145B. S/U or letter grading.

**246. African Art (4)** Seminar, three hours. Studies in selected topics in art of sub-Saharan Africa. May be repeated for credit with consent of adviser. S/U or letter grading.

**C246A. Selected Topics in African Art (4)** Lecture, three hours. Variable topics in African art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C146A. S/U or letter grading.

**247. Oceanic Art (4)** Seminar, three hours. Studies in selected topics in art of Pacific islands. May be repeated for credit with consent of adviser. S/U or letter grading.

**C248A. Art and Material Culture, Neolithic to 210 BC (4)** Lecture, three hours; discussion, one hour. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). Concurrently scheduled with course C148A. S/U or letter grading.

**C248B. Art and Material Culture of Early Imperial China, 210 BC to AD 906 (4)** Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. Concurrently scheduled with course C148B. S/U or letter grading.

**C248C. Art and Material Culture of Late Imperial China, 906 to 1911 (4)** Lecture, three hours. Secular and religious (Buddhist and Taoist) architecture, painting, sculpture, and various luxury industries (lacquer, porcelain, textiles, jade, bronze, furniture, wood and bamboo carving, etc.). Concurrently scheduled with course C148C. S/U or letter grading.

**C248D. Advanced Chinese Art (4)** Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C148D. S/U or letter grading.

**C248E. Art in Modern China (4)** Lecture, three hours. Concentrated look at major schools and masters of Chinese art from turn of 20th century to present, with focus on interaction with foreign cultures and issues of self-identity, assimilation, modernity, tradition, and continuity. Consideration of recent developments in Chinese art in global context. Concurrently scheduled with course C148E. S/U or letter grading.

**C248F. Advanced Chinese Painting (4)** Lecture, three hours. Examination of classical painting of imperial China through theory and practice. Concurrently scheduled with course C148F. S/U or letter grading.

**C248G. Gardens in Chinese Art and Culture (4)** Lecture, three hours. Overview of practice, theory, and representation of Chinese gardens in their historical, philosophical, artistic, social, and cultural contexts through literary writings, paintings, and aspects of material culture. Concurrently scheduled with course C148G. S/U or letter grading.

**C249A. Selected Topics in Chinese Art (4)** Lecture, three hours. Variable topics in Chinese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C149. S/U or letter grading.

**249B. Chinese Art (4)** Seminar, three hours. Advanced studies in secular and religious artistic traditions of China. May be repeated for credit with consent of adviser. S/U or letter grading.

**C250. Advanced Japanese Art (4)** Lecture, three hours. Requisite: course 150A. Study in Japanese painting and sculpture. Concurrently scheduled with course C150B. S/U or letter grading.

**C251A. Selected Topics in Japanese Art (4)** Lecture, three hours; discussion, one hour (when scheduled). Variable topics in Japanese art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C151. S/U or letter grading.

**251B. Japanese Art (4)** Lecture, three hours. Advanced studies in secular and religious artistic traditions of Japan. May be repeated for credit with consent of adviser. S/U or letter grading.

**C252A. History of Korean Painting (4)** Lecture, three hours. Korean painting history from Three Kingdoms period to 19th century, examined within cultural and sociopolitical contexts. Special emphasis on diversity of topics and social status of artists during Choson dynasty (1392 to 1910). Concurrently scheduled with course C152B. S/U or letter grading.

**C252B. History of Korean Ceramics (4)** Lecture, three hours. History of Korean ceramics from Neolithic period to 19th century, with special emphasis on technological and stylistic developments. Concurrently scheduled with course C152C. S/U or letter grading.

**C252C. History of Korean Buddhist Art (4)** Lecture, three hours. History of Korean Buddhist art from Three Kingdoms period to Choson dynasty, with special emphasis on Buddhist iconography and relationship between sculpture, painting, and architecture. Concurrently scheduled with course C152D. S/U or letter grading.

**C253A. Selected Topics in Korean Art (4)** Lecture, three hours. Variable topics in Korean art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C153. S/U or letter grading.

**253B. Selected Topics in Korean Art (4)** Lecture, three hours. Studies of Korean art under different art-historical perspectives, methods, and theories. Individual studies, with emphasis on professional presentation. Group studies may be linked to exhibition projects. May be repeated with consent of instructor. S/U or letter grading.

**C254A. Advanced Indian Art (4)** Lecture, three hours. Requisite: course 154A. Study in Indian sculpture and architecture. Concurrently scheduled with course C154C. S/U or letter grading.

**254B. Modern and Contemporary South Asian Art (4)** Lecture, three hours. Topics in modern and contemporary South Asian art from 1900 to present. Letter grading.

**C255A. Selected Topics in South and Southeast Asian Art (4)** Lecture, three hours. Variable topics in South and Southeast Asian art that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C155. S/U or letter grading.

**255B. Indian Art (4)** Lecture, two hours. Advanced studies in secular and religious artistic traditions of India. May be repeated for credit with consent of adviser. S/U or letter grading.

**C258A. Selected Topics in Asian Arts and Architecture (4)** Lecture, three hours. Variable topics in Asian arts and architecture that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C158A. S/U or letter grading.

**258B. Topics in Asian Archaeology (4)** (Same as Anthropology M216.) Seminar, three hours. Designed for graduate students. Topics may include identification of ethnic groups in archaeology, archaeology of religion, archaeological reflections of commerce and trade and their influence on social development, archaeology of language dispersal, cultural contact and nature of cultural influence. S/U or letter grading.

**258C. Fieldwork in Archaeology. (2 to 8)** Fieldwork, to be arranged. Participation in archaeological excavations or other archaeological research under supervision of staff. May be repeated for credit with consent of adviser. S/U or letter grading.

**C260A. Art and Empire (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of relationship between art and imperial ideologies and introduction to current issues in colonial studies and postcolonial criticism. Concurrently scheduled with course C160. S/U or letter grading.

**260B. Problems in Postcolonial Criticism (4)** Seminar, three hours. Advanced study of current theoretical debates concerning colonial and postcolonial history and society. Letter grading.

**C269. Selected Topics in Architectural History (4)** Lecture, three hours. Variable topics in architectural history that reflect interests of individual regular and/or visiting faculty members. May be repeated twice for credit. Concurrently scheduled with course C169. S/U or letter grading.

**C270A. Museum Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction to museology as critical practice, with emphasis on history and theory of museums and impact of culture and society on current museum theory and practice. Concurrently scheduled with course C170A. S/U or letter grading.

**C270B. Museum Studies Practicum. (2 to 4)** Lecture, three hours. On-site examination and discussion of selected artworks, exhibitions, and associated published and distributed materials, and of museum and gallery institutions, practices, and policies. Concurrently scheduled with course C170B. Letter grading.

**C271. Selected Topics in Museum Studies (4)** Seminar, three hours. Variable topics in museum studies that reflect interests of individual regular and/or visiting faculty members. May be repeated for credit with topic change. Concurrently scheduled with course C171. S/U or letter grading.

**C272A. Preservation of Art (4)** Lecture, three hours. Designed for anthropology, archaeology, and art history graduate students. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values, illustrating how cultural materials may have been treated differently according to those values. Concurrently scheduled with course C172A. S/U or letter grading.

**272B. Principles, Practice, and Ethics in Conservation of Cultural Heritage (4)** (Formerly numbered 272B.) (Same as Conservation M221.) Seminar, three hours. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Use of several examples of issues and problems involved in preservation of works of art, from L.A. Murals to Sistine Chapel, from ancient wall paintings to Statue of Liberty. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values in conservation of cultural materials, illustrating how cultural materials may have been treated differently according to those values. S/U or letter grading.

**C272C. Art: Fakes, Forgeries, and Authenticity (4)** Lecture, three hours. Examination of concepts of authenticity, originality, fakes, and forgeries in art. Overview of problems inherent in concept of authenticity and description of many examples of problems related to this concept in series of discussions based on objects from variety of cultures. Introduction to subject of fakes and account of three different areas of connoisseurship that are essential component of production, study, and scientific examination of fakes. Nature of art

connoisseurship described in many examples from Renaissance and earlier panel paintings, as well as antiquities and traditional African arts. Background of art restoration and art conservation discussed in relationship to authenticity and technical studies. Scientific tools that form basis of another kind of connoisseurship described in terms of dating techniques that can be applied directly to works of art and technical methods by which material constituents of works of art are studied. Concurrently scheduled with course C172B. S/U or letter grading.

**273. Studies in Materials and Production of Artworks (4)** Seminar, three hours. Designed to expose students to material properties and technical production issues related to making of artworks. Introduction to processes of construction, fabrication, maintenance, preservation, and more. Hands-on demonstrations and workshops to deepen understanding of significance of choices that artists make in choice of materials. Processes of making that can impact final physical forms as well as aesthetic meanings that can attach to it. Combination of theoretical, ethical, and practical questions that confront conservators as well as those specializing in technical art history. S/U or letter grading.

**495. Teaching Art History. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Designed for graduate students. Required of all new teaching assistants during Fall Quarter of their teaching assistant appointment. Workshop/seminar in teaching techniques and pedagogical issues, consisting of readings, discussions, and guest speakers on selected topics. May not be applied toward MA or PhD course requirements. S/U grading.

**496. Teaching with Technology. (1 to 4)** Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Designed for graduate students. Introduction to technological support available to new departmental teaching assistants. Topics include exploring functions of teaching assistant archive, CCLE, MyUCLA, Gradebook, and Turnitin; and ways to efficiently use these tools. Introduction to lesson planning and ways to establish effective teaching strategies in and out of classroom. May not be applied toward MA or PhD course requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. S/U grading.

**598. Research for and Preparation of MA Thesis. (2 to 12)** Tutorial, to be arranged. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 12)** Tutorial, to be arranged. S/U grading.

# Arts and Architecture

## Arts and Architecture Courses

### Lower Division

**10. Arts Encounters: Exploring Arts Literacy in 21st Century (5)** Lecture, four hours; discussion, one hour; field trips, three hours; outside study, seven hours. Through series of direct encounters with art and artists across global range of practices, course equips students with kinds of critical skills that enhance their understanding of, and sharpen their appetite for, wide range of artistic practices. Attendance at performance/art events outside normal class schedule is mandatory. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

### Upper Division

**100. Selected Topics in Arts (4)** Lecture, three to six hours; discussion and/or laboratory, two to three hours (when scheduled); outside study, six to nine hours. Selected topics in arts explored through variety of approaches that may include projects, readings, studio work, performance, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 8 units. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

# Asian American Studies

## Asian American Studies Courses

### Lower Division

**10. History of Asian Americans (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 10W. Multidisciplinary examination of history of Asians and Pacific Islanders in U.S. P/NP or letter grading.

**10W. History of Asian Americans (5)** Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10. Multidisciplinary examination of history of Asians and Pacific Islanders in U.S. Satisfies Writing II requirement. Letter grading.

**18. Leadership and Student-Initiated Retention (2)** (Same as African American Studies M18, American Indian Studies M18, and Chicana/o and Central American Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M168. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**20. Contemporary Asian American Communities (5)** Lecture, three hours; discussion, one hour. Multidisciplinary introduction to contemporary Asian American populations and communities in U.S. Topics include contemporary immigration, demographic trends, sociocultural, economic, and political issues, and interethnic relations. P/NP or letter grading.

**20W. Contemporary Asian American Communities (5)** Lecture, three hours; discussion, two hours. Requisite: English Composition 3. Not open for credit to students with credit for course 20. Multidisciplinary introduction to contemporary Asian American populations and communities in U.S. Topics include contemporary immigration, demographic trends, sociocultural, economic, and political issues, and interethnic relations. Satisfies Writing II requirement. Letter grading.

**30. Asian American Literature and Culture (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 30W. Multidisciplinary introduction to Asian American literature and cultural production. Exploration of cultural politics and creative expression of Asia Pacific Americans in their own terms and in context of emergence and reception of artistic works—from personal, local, regional, national, and to global/imperial. Implicit and explicit comparison of Asian American cultural production to diverse experiences of other aggregated groupings, historic and emergent. Addresses intersectional issues of gendering, sexuality, non-secularity, and socioeconomic conditions. P/NP or letter grading.

**30W. Asian American Literature and Culture (5)** Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 30. Multidisciplinary introduction to Asian American literature and cultural production. Exploration of cultural politics and creative expression of Asia Pacific Americans in their own terms and in context of emergence and reception of artistic works—from personal, local, regional, national, and to global/imperial. Implicit and explicit comparison of Asian American cultural production to diverse experiences of other aggregated groupings, historic and emergent. Addresses intersectional issues of gendering, sexuality, non-secularity, and socioeconomic conditions. Satisfies Writing II requirement. Letter grading.

**40. Asian American Movement (5)** Lecture, three hours; discussion, one hour. Using Asian American movement of late 1960s and 1970s as lens, introduction to social history methods, including role of oral history, documentary films, and archival history, and analysis of primary and secondary sources. Asian American movement situated within larger frame of social change of era and interpretation of nation and society through lives of ordinary men and women. Exploration of campus- and community-based activism, service learning, and civic engagement. P/NP or letter grading.

**40W. Asian American Movement (5)** Lecture, three hours; discussion, two hours. Requisite: English Composition 3. Not open for credit to students with credit for course 40. Using Asian American movement of late 1960s and 1970s as lens, introduction to social history methods, including role of oral history, documentary films, and archival history, and analysis of primary and secondary sources. Asian American movement situated within larger frame of social change of era and interpretation of nation and society through lives of ordinary men and women. Exploration of campus- and community-based activism, service learning, and civic engagement. Satisfies Writing II requirement. Letter grading.

**50. Asian American Women (5)** Lecture, three hours; discussion, one hour. Overview of history of feminist theory and intersection of gender, class, race/ethnicity from cross-cultural perspectives, with focus on Asian American women's lived experiences in U.S. Topics include Asian American women's roles in family life, work, community organization, social change, and cultural creativity. Examination of broader structural forces that affect women in society, such as racialization, immigration, global capitalism, colonialism and postcolonialism, and social movements. P/NP or letter grading.

**50W. Asian American Women (5)** Lecture, three hours; discussion, two hours. Requisite: English Composition 3. Not open for credit to students with credit for course 50. Overview of history of feminist theory and intersection of gender, class, race/ethnicity from cross-cultural perspectives, with focus on Asian American women's lived experiences in U.S. Topics include Asian American women's roles in family life, work, community organization, social change, and cultural creativity. Examination of broader structural forces that affect women in society, such as racialization, immigration, global capitalism, colonialism and postcolonialism, and social movements. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Asian American Studies. (1 to 2)** Tutorial, one to two hours. Current topics and particular research methods in Asian American studies through readings and other assignments. May be repeated for credit. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**103. Social Science Research Methods (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introduction to fundamentals of conducting social research on Asian Americans, providing experience in using some research methods and exercises in evaluating nature and quality of scientific research on Asian American issues. P/NP or letter grading.

**104A. Field Studies Methods in Asian Pacific Communities (4)** Lecture, three hours. Preparation: one course from 101 through M191F. Development of community profiles on Asian Pacific American communities of students' choice, using various field studies techniques of data collection. P/NP or letter grading.

**104B. Special Internships in Asian Pacific Communities (4)** Fieldwork, eight hours minimum. Requisite: course 104A or another Asian American studies course (except 99). Integrates academic and empirical work by providing students challenge of performing public service and community work in Asian Pacific or other multicultural communities, and of bringing their ongoing internship experiences back to classroom. May be repeated for credit. P/NP or letter grading.

**105. Historical Research Methods (4)** Seminar, three hours. Requisite: course 10. Introduction to methods used to locate and analyze source materials for research on Asian American history. Historians have used wide range of sources that may include archival materials, oral history, material culture, and more. P/NP or letter grading.

### 107. Scholarly and Creative Communication in Asian American Studies (4)

Lecture, three hours. Designed for advanced junior/senior Asian American Studies majors and minors. Examination of alternative modes of expression to effectively reach academic and nonacademic audiences, including written text, visual materials, and performance. Exploration of scholarly works by looking at how narratives are developed, ideas and values are framed, or knowledge is generated and transmitted, through either traditional or electronic mediums. Investigation of discursive and popular forms, stylistic patterns, and communicative practices. Themes and content vary by term. Independent research related to course objective may be pursued with guidance from instructor. Sharing and critiquing of other student works in progress. P/NP or letter grading.

**108. Policy, Planning, and Community (4)** (Same as Urban Planning M122.) Lecture, three hours; field laboratory. Project-oriented methods course on conducting needs assessment in Asian American communities. Geographic information systems to be used to define problems and needs. Letter grading.

**109. Gender Violence, Policing, and Law (4)** Seminar, three hours. Examination of race, gender, and sexuality in modern American legal punishment, policing, and borders. Draws from feminist of color and indigenous feminist anti-violence theories to trace relationship between protection, rescue, and punishment in Western humanitarianism, liberalism, nation-state building, colonialism, and slavery. Builds on community responses and strategies, creative works, and community alternative. P/NP or letter grading.

**110. American Immigration Policy (4)** Seminar, three hours. Examination of determinants leading to U.S. immigration policy over time and its implications for demographics and political culture. Survey of issues and policies aimed at citizenship and immigrant integration. P/NP or letter grading.

**111. Asian Americans and War (4)** Lecture, three hours. Interdisciplinary examination of role that war has played in history and culture of Asian Americans, drawing on diverse set of materials ranging from Asian American literature, Hollywood movies, and wartime propaganda to political speeches, Supreme Court decisions, and protest culture, to evaluate relationship between Asian American communities and geopolitical conflicts from late-19th century to contemporary period. P/NP or letter grading.

**112A. Historical Survey of Asian American Literature (5)** (Same as English M102A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Asian American literature either produced from or thematically reflecting pre-1980 period. Issues include immigration, diaspora, generational conflict, appropriation of cultural traditions, ethnic/gender formation, interethnic dynamics, and social movement. Works by such authors as Edith Eaton, Younghill Kang, Carlos Bulosan, Hisaye Yamamoto, John Okada, Frank Chin, and Maxine Hong Kingston. P/NP or letter grading.

**112B. Contemporary Asian American Literary Issues and Criticism (5)** (Same as English M102B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of post-1980 Asian American literature that explores key literary and critical issues, such as race and geography, aesthetics and activism, cultural work and immigrant labor, kinship and sexuality, model minority and Orientalism, and meat versus rice, in study of novels, poetry, performance, memoirs, and essays. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**112C. Asian American Creative Writing (4)** Seminar, four hours. Enforced requisite: English Composition 3 or 3H. Designed for juniors/seniors. Examination of margin of geographic and psychic spaces that Asian Americans inhabit outside American mainstream and specific factors, such as generation, ethnicity, gender, class, and sexual orientation, that shape individual's unique margin. Balanced blend of reading and creative writing. P/NP or letter grading.

**113. Asian Americans and Law (4)** Lecture, four hours. Introduction to Asian American political identity and critical race theory—study of race and representation in making of modern American law and legal meaning. Survey of federal cases, legislation, and regulations pertaining to race, gender, and sexuality in Asian American community formations and relationality towards communities of color and indigenous communities, and making of nation-state. P/NP or letter grading.

**114. Asian American Education and Schooling (4)** (Same as Education M103.) Seminar, four hours. Examination of existing body of research from various disciplines on Asian/Pacific American educational experiences. Letter grading.

**115. Women and Community in Asian American Studies (4)** Lecture, three hours. Condition of Asian women in America. Topics include women in Asian American history, racial and cultural stereotypes, and contemporary issues. Methodological approaches to study of gender issues presented and evaluated. P/NP or letter grading.



**116. Asian American Social Movements (4)** (Same as Labor Studies M116.) Lecture, three hours. Designed for juniors/seniors. Examination of several dimensions of Asian American social movements, including grassroots, mass movement character, political and social vision, and social and political relevance to current issues. How movement participants linked struggle for change with own personal transformation and growth. P/NP or letter grading.

**117. Asian American Personality and Mental Health (4)** (Same as Psychology M107.) Lecture, three hours. Prerequisite: Psychology 10. Foundations of personality development and mental health among Asian Americans. Topics include culture, family patterns, achievements, stressors, resources, and immigrant and minority group status. P/NP or letter grading.

**118. Asian American Religious History (4)** Lecture, four hours. Examination of religion as thematic thread within context of Asian American history, primarily during period before World War II. Basic grounding in early Asian American history through exploration of role of religion in various communities. P/NP or letter grading.

**119XP. Asian American and Pacific Islander Labor Issues (4)** (Formerly numbered M119.) (Same as Labor Studies M119XP.) Lecture, three hours. Examination of historical and contemporary labor issues in Asian and Pacific Islander American communities, with emphasis on key role that Asian and Pacific Islander American students can play in supporting labor struggles of low-income immigrants. P/NP or letter grading.

**120. Representation and Resistance: Asian American Independent Cinema (4)** Lecture/screenings, three hours. Exploration of relationship between content, social context, and production processes in independently produced films and digital media by and about Asian American filmmakers, from social change documentaries to theatrical features and online talent. P/NP or letter grading.

**121. Exploring Asian American Theater (4)** Lecture, four hours. Study of Asian American plays; students required to compose one act based on their own experience using lessons learned in class. Exploration of scene study and acting exercises. P/NP or letter grading.

**122A. Indigeneity, Empire, and Resistance in Pacific Islands (4)** Lecture, three hours. Introduction to indigenous and colonial histories of Pacific Islands. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

**122B. Gender and Film in Pacific (4)** Lecture, three hours. Prerequisite: course 122A. Exploration of rise of film in Pacific Islands during 20th century, with attention to politics of gender, history, and representation, to engage students in textual and visual readings of feature-length films about Pacific. Discussions, film screenings, and guest speakers, with focus on aesthetic, cultural, economic, gendered, historical, and political dimensions of films. P/NP or letter grading.

**123. Cultures of/against Empire (4)** Seminar, three hours. Critical concepts and cultural practices linking Asian American studies to study of U.S. cultures of imperialism. Course begins with premise that Asian American studies contribute distinctly to contemporary scholarship on U.S. Empire. Examination of political and intellectual coalitions toward which Asian American studies critique builds. Emphasis on works that approach study of empire through comparative racial formation, postcolonialism, transnationalism, and studies of migration. P/NP or letter grading.

**124. Comparative Racialization and Indigeneity (4)** (Same as African American Studies M124.) Lecture, three hours. Examination of processes and histories of racialization and colonization in U.S. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

**125. Transpacific Literature and Theory (4)** Seminar, three hours. Prerequisite: course 10, 10W, 20, 20W, 30, 30W, 40, 40W, 50, or 50W. In-depth analysis of Asian American and Pacific Islander novels and poetry in transpacific framework. Critical examination of how Asia, Americas, and Pacific Islands are linked through shared histories of U.S. imperialism, Asian migration, and indigenous sovereignty. P/NP or letter grading.

**126. Comparative Race and Indigeneity (4)** Seminar, three hours. Preparation: one ethnic studies course. Analysis of race and indigeneity within comparative ethnic studies framework. Examination of how Asian, Pacific Islander, Black, indigenous, and Latinx identifiers are formed in relation to one another in U.S. and its territories. Interrogation of how communities are pitted against each other by structural antagonisms—such as war, imperialism, racial capitalism, settler colonialism, white supremacy, and heteropatriarchy—and theorizing of strategies for building solidarities across difference. Intersectional and interdisciplinary analysis of race and indigeneity in relation to gender, sexuality, and class, with texts from ethnic studies, gender studies, anthropology, sociology, history, cultural studies, and literature. P/NP or letter grading.

**128. Participatory Action Research on Youth Organizing for Racial Justice (4)** (Same as African American Studies M129B, American Indian Studies M129, Chicana/o and Central American Studies M129B, and Public Affairs M122.) Lecture, four hours. Students are trained to conduct participatory action research on grassroots youth organizing across California. Students gain historical and theoretical background on multi-racial and inclusive organizing. Students learn how to collect and analyze data pertaining to pressing organizing issues. Study and critical analysis of youth organizing strategies. Weekly training modules on data collection and grassroots organizing strategies that prepare students for internships in grassroots youth organizing groups serving Asian American, Black, Latinx, and Native American communities. P/NP or letter grading.

**129. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4)** (Same as Community Health Sciences M140.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders; identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading.

**130A. Chinese American Experience (4)** Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Chinese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Chinese Americans and their community. P/NP or letter grading.

**130B. Chinese Immigrant Literature and Film (4)** (Same as Chinese M153 and Comparative Literature M171.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

**130C. Chinese Immigration (4)** (Same as Sociology M153.) Lecture, three hours; discussion, one hour. Survey of sociological studies of Chinese immigration, with focus on international context, organization, and institutions of Chinese America and its interactions with social environment. P/NP or letter grading.

**131A. Japanese American Experience (4)** Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Japanese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Japanese Americans and their community. P/NP or letter grading.

**131B. Japanese Americans and Incarceration (4)** Seminar, three to four hours. Prerequisite: course 10 or 10W. Designed for juniors/seniors. In-depth analysis of key literature about mass incarceration of Japanese Americans during 1940s. Immediate and long-range effects of internment. Emphasis on research. Original paper based on primary sources held by University of California required. Letter grading.

**131C. Japanese American Resettlement (4)** Seminar, three hours. Prerequisite: course 10. In-depth analysis of key literature about resettlement of Japanese Americans during World War II. Development of original research paper based on primary sources. P/NP or letter grading.

**132A. Korean American Experience (4)** Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Korean Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Korean Americans and their community. P/NP or letter grading.

**133. Pilipino American Experience (4)** Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Pilipino Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Pilipino Americans and their community. P/NP or letter grading.

**134. Vietnamese American Experience (4)** Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Vietnamese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Vietnamese Americans and their community. P/NP or letter grading.

**135. Southeast Asian Refugee Communities in U.S. (4)** Lecture, three hours. Survey of contemporary Southeast Asian American communities and examination of conditions that led to migration of almost two million people from Laos, Cambodia, and Vietnam with close attention to history of U.S. imperialism and Cold War politics. Screening of fiction and nonfiction films by and/or about Southeast Asian refugees. P/NP or letter grading.

**140XP. Power to People: Asian American and Pacific Islander Community-Based Learning (4)** (Formerly numbered 140SL.) Lecture, two hours; fieldwork, four hours. Enforced prerequisite: course 10, 10W, 20, 20W, 30, 30W, 40, 40W, 50, or 50W. Service-learning course to engage and critically examine

community organizing and community-based organizations (CBOs) in Asian American and Pacific Islander communities related to issues such as arts and culture, community health, and applied research. P/NP or letter grading.

**141AX. Asian American and Pacific Islander Leadership Development Project Part I: Leadership (4)** (Formerly numbered 141A.) Lecture, three to four hours. Limited to juniors/seniors. First term of two-term series on leadership development, with focus on intellectual and practical learning of leadership concepts, models, and skills. In Progress grading (credit to be given only on completion of course 141BX).

**141BX. Asian American and Pacific Islander Leadership Development Project Part II: Field Studies (4)** (Formerly numbered 141B.) Lecture, three hours; fieldwork, three hours. Enforced requisite: course 141AX. Limited to juniors/seniors. Second term of two-term series on leadership development, with focus on Asian American, Pacific Islander, and other ethnic communities in Los Angeles. Examination of different approaches and strategies to community building and maintenance. P/NP or letter grading.

**C142A. Ethnocommunications I: Introduction to Creating Community Media (4)** Seminar, three hours. Strong verbal communication skills and familiarity with technology required. Introduction to social documentary theory and methodology. Through hands-on production, use of digital video to tell visual stories, reclaim history, and examine social issues related to diverse peoples, cultures, and communities. Viewing of films and interactive media for critique and discussion, guest speakers, basic instruction in use of digital video technology, and group and individual video projects. Concurrently scheduled with course C242A. P/NP or letter grading.

**C142B. Ethnocommunications II: Intermediate Creating Community Media (4)** Seminar, three hours. Strong verbal communication skills and familiarity with technology required. Intermediate application of social documentary theory and methodology. Use of digital video to create new approaches to visual storytelling, reclaim history, and examine social issues related to diverse peoples, cultures, and communities. Continuing instruction in use of digital technology and concepts. Topics include videography, composition, sound recording, interviewing techniques, editing, and writing treatments. Completion of community-based documentary required. Concurrently scheduled with course C242B. P/NP or letter grading.

**C142C. Ethnocommunications III: Advanced Creating Community Media (4)** Seminar, three hours. Enforced requisite: course C142B. Advanced application of social documentary theory and methodology. Continuing instruction in use of digital technology and concepts. Intensive instruction in proposal writing, videography, composition, sound recording, interviewing techniques, visual storytelling, and editing. Completion of community-based documentary suitable for public exhibition required. Concurrently scheduled with course C242C. P/NP or letter grading.

**143A. Fieldwork in Asian American and Pacific Islander Communities (4)** (Same as Anthropology M138Q.) Lecture, three hours; discussion, one hour. Introduction to qualitative research methods and application of techniques in data collection, analysis, and reporting. Critical reflection of issues related to identity, migration, multiculturalism, tourism, and indigenous rights. Field excursions and guest lecturers from local community included. Given in Hawai'i. P/NP or letter grading.

**143B. Politics of Race, Ethnicity, Migration, and Multiculturalism in Hawai'i (4)** Lecture, three hours; discussion, one hour. Critical examination of historical and contemporary experiences of various people in Hawai'i. Investigation of historical, economic, and political contexts of migration and relations between indigenous peoples, migrants, and existing racial and ethnic groups. P/NP or letter grading.

**143C. Ethnic Identity and Ethnic Relations in Hawai'i (4)** (Same as Anthropology M168Q.) Lecture, three hours; discussion, one hour. Continuing construction and expression of ethnic identity in various cultural forms and social contexts in Hawai'i. Overview of theoretical approaches to and basic concepts in study of ethnic identity and ethnic relations. Discussion of historical and contemporary aspects of ethnic identity and ethnic relations in Hawai'i. Given in Hawai'i. P/NP or letter grading.

**151. Asian American Politics (4)** (Same as Political Science M180B.) Lecture, three hours. Introduction to Asian American politics through the study of the history of Asian Americans in the U.S., contemporary Asian American political participation, public opinion, elected officials, discrimination, civil liberties, and civil rights within the context of Asian Americans in the U.S. P/NP or letter grading.

**160. Culture, Media, and Los Angeles (6)** (Same as African American Studies M102 and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

**161. Ethnic, Cultural, and Gender Issues in America's Healthcare Systems (4)** (Same as Health Policy M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and healthcare delivery in U.S. Letter grading.

**162. Class and Gender in Care Work (4)** (Same as Chicana/o and Central American Studies M128B, Gender Studies M140C, and Labor Studies M143.) Lecture, three hours; discussion, one hour. Examination of how gender, race, class, and citizenship status shape domestic labor in U.S. Examination of domestic worker experiences through film, fiction, and traditional scholarship. Investigation of why domestic work is in high demand, who employs domestic workers, and why immigrants and women of color make up large percentage of this workforce. Exploration of how domestic workers navigate pay and working conditions, and how they build community and family networks in shadows of their privileged employers. P/NP or letter grading.

**163. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers (4)** (Same as African American Studies M167, Chicana/o and Central American Studies M130, and Labor Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multi-ethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

**164. Women, Violence, Globalization: India, Philippines, Singapore, Vietnam (4)** (Same as Gender Studies M164A.) Lecture, four hours. Study of various forms of violence done on women not only in and of themselves but in light of larger systems of oppression, with focus on Pilipino, Vietnamese, Singaporean, and South Asian cultures. Letter grading.

**165. Race, Gender, Class (5)** (Same as Comparative Literature M175.) Seminar, three hours. Theoretical and literary readings combined to explore three main aspects of social and cultural experience (race, gender, class) as separate but interconnected spheres affecting both minority and majority populations in U.S. Examination of these issues from comparative perspectives. P/NP or letter grading.

**166A. Immigrant Rights, Labor, and Higher Education (4)** (Same as Chicana/o and Central American Studies M156A and Labor Studies M166A.) Lecture, three hours; discussion, one hour. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

**166B. Research on Immigration Rights, Labor, and Higher Education (4)** (Same as Chicana/o and Central American Studies M156B and Labor Studies M166B.) Seminar, two hours. Requisite: course M166A. Expansion of research conducted by students in course M166A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

**166C. Research on Immigrant Students and Higher Education (4)** (Same as Chicana/o and Central American Studies M156C and Labor Studies M166C.) Seminar, three hours. Enforced requisites: courses M166A, M166B. Expansion of research conducted by students in courses M166A and M166B involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Designed around class project, where students work on showcasing all material collected throughout year. Letter grading.

**167. Immigration and New Second Generation (4)** Lecture, three hours. Study of lived experiences of contemporary immigrants and their children. Examination of socioeconomic circumstances, life chances, and outcomes of new second generation. Review of theoretical literature and empirical research on immigration and immigrant adaptation, comparing historical and contemporary trends of immigration and experiences of adult immigrants. Study of immigrant children's experiences, considering patterns, processes, and mechanisms of growing up American and identity formation. Asian immigration and Asian Americans from comparative perspective. P/NP or letter grading.

**168. Student-Initiated Retention and Outreach Issues in Higher Education (4)** (Same as African American Studies M118, American Indian Studies M118, and Chicana/o and Central American Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

**169. Constructing Race (4)** (Same as African American Studies M159P and Anthropology M144P) Lecture, three hours; discussion, one hour (when scheduled). Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

**170. Transnational Perspectives on Asian America (4)** Lecture, three hours. Recommended preparation: background in Asian Pacific American social and legal history. Designed for juniors/seniors. Examination of transformations that have occurred in Asian America in last four decades as consequence of global economic restructuring and new immigration. Introduction to and survey of new frameworks for understanding these changes in postmodern Asian Pacific American communities, using theories of transnationalism and Asian American political and racial history. Readings and discussion on transnational aspects of wide range of historical and contemporary topics in context of Asia/Asian American experience. Building of linkages between roots of social constructions of race and multisited social processes that now constitute globalizing Asian America. Theoretical readings assigned. P/NP or letter grading.

**171A. Critical Issues in U.S.-China Relations (4)** Lecture three hours. Not open to freshmen. Critical examination of U.S. involvement in China, Hong Kong, and Taiwan, including study of historical, cultural, political, and socioeconomic factors that shape relations between China, Hong Kong, and Taiwan and U.S. Examination of impact of relationships in Pacific Rim and Chinese Americans and their communities. P/NP or letter grading.

**171B. Critical Issues in U.S.-Japan Relations (4)** Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Japan, including study of historical, cultural, political, and socioeconomic factors that shape relations between Japan and U.S. Examination of impact of relationships in Pacific Rim and Japanese Americans and their communities. P/NP or letter grading.

**171C. Critical Issues in U.S.-Korea Relations (4)** Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Korea, including study of historical, cultural, political, and socioeconomic factors that shape relations between Korea and U.S. Examination of impact of relationships in Pacific Rim and Korean Americans and their communities. P/NP or letter grading.

**171D. Critical Issues in U.S.-Philippine Relations (4)** (Same as History M144C.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: History 176A, 176B, 176C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in 20th century. P/NP or letter grading.

**171E. Critical Issues in U.S.-Vietnam Relations (4)** Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Vietnam, including study of historical, cultural, political, and socioeconomic factors that shape relations between Vietnam and U.S. Examination of impact of relationships in Pacific Rim and Vietnamese Americans and their communities. P/NP or letter grading.

**171F. U.S. Empire in Southeast Asia (4)** Seminar, three hours. Limited to juniors/seniors. Interdisciplinary examination of historical trajectory that led U.S. Empire to Southeast Asia and conditions that led to migration of refugees from Laos, Cambodia, and Vietnam to U.S. with focus on settler colonialism, imperialism, and global racial warfare. P/NP or letter grading.

**172A. Indian Identity in U.S. and Diaspora (4)** (Same as History M174G.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of overseas Indian communities; transformations of Hinduism in diaspora; emergence of new diasporic art forms such as bhangra rap and chutney music; relations between Indians and other racial and ethnic groups; Indian women as embodiment of Indian culture; diasporic identities. P/NP or letter grading.

**172B. Gender in South Asian Communities at Home and Abroad (4)** Seminar, three hours. Examination of centrality of gender to histories and identities of men and women of South Asian affiliation across multiple historical and geopolitical contexts. Focus on colonial South Asia, South Asian diasporas in U.K., South Asian Americans in U.S., and transnational South Asian public cultures. Theoretical approaches to study of South Asians in comparative frame and consideration of how transnational perspectives enable revising South Asian American experiences and to rethink relationship between Asian American studies, diaspora studies, and area studies. P/NP or letter grading.

**172C. Transnational Bollywood (4)** (Formerly numbered M172C.) Lecture, three hours. Study of how popular Bollywood cinema materializes colonial and postcolonial formations pertaining to gender, class and caste, sexuality, race, and economic liberalization in South Asia, as well as across South Asian communities in North America, U.K., and Africa. Examination of how complex

relationships between Bollywood and transnational South Asian diasporas enable us to better understand South Asian American communities. P/NP or letter grading.

**173. Topics in Vietnamese Cinema and/or Literature (4)** (Same as Vietnamese CM155.) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. P/NP or letter grading.

**174A. Special Courses in Comparative Race, Ethnicity, Gender, and Sexuality (4)** Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected issues on race, ethnicity, gender, and sexuality from comparative perspective. May be repeated for credit with topic change. P/NP or letter grading.

**174B. Special Courses in Transnationalism and Diasporas (4)** Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected comparative and international issues pertaining to transnationalism and diasporas. May be repeated for credit with topic change. P/NP or letter grading.

**175A. Topics in Comparative Race, Ethnicity, Gender, and Sexuality (4)** Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected issues on race, ethnicity, gender, and sexuality from comparative perspective. May be repeated for credit with topic change. P/NP or letter grading.

**175B. Topics in Transnationalism and Diasporas (4)** Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected comparative and international issues pertaining to transnationalism and diasporas. May be repeated for credit with topic change. P/NP or letter grading.

**176. Making Fiction Work: Imagining Philippines and its Elsewheres (4)** Seminar, three hours. Requisite: one course from course 10, 10W, 20, 20W, 30, 30W, 40, 40W, 50, 50W, 123, 133, M171D or History M144C, Filipino 130A, 152, 155, or consent of instructor. Philippines and Filipino global diaspora as launching off point for interdisciplinary study of cultural diversity, national identity formation, global migration, labor, rise of Asia, and borderlands. Critical study of difference, not as identitarian, celebratory approach of sameness; rather focus on shared struggles between minoritized groups in U.S. and shared histories of U.S. territorial possessions. May not be repeated for credit. P/NP or letter grading.

**177. Social Movements in Guam and Pacific (4)** Lecture, three hours. Survey of immigrant and indigenous histories in Guam, Mariana Islands, and Oceania, Emphasis on Asian, Chamorro, and Pacific Islander communities, and feminist, environmental, nationalist, and religious social movements. P/NP or letter grading.

**178. Critical Refugee Studies (4)** Lecture, three hours. Requisite: course 10, 10W, 20, 20W, 30, 30W, 40, 40W, 50, or 50W. Examination of how refugees are represented in government and popular media, and how refugees represent themselves through cultural production. Rather than focus on refugee as victim, study centers refugee as subject of knowledge production for critical analyses of war, empire, militarism, and human rights. P/NP or letter grading.

**179. Asian Community: Border-Crossing, Diasporic Formation, and Social Transformation (4)** (Same as Sociology M139.) Lecture, three hours; discussion, one hour. Exploration of critical issues facing broad Asian community, in context of globalization and international migration, through social science lens of migration studies and diaspora studies. Examination of how movements of people, ideas, capital, and goods create new trends and patterns of diasporic formation, integration, and social transformation at individual, group, and societal levels in non-Western contexts. Students engage in intellectually stimulating discussions and debates on immigration and immigrant integration in Asian world; and on anxieties, tensions, conflicts, and accommodation in age of globalization. Students also discuss challenges, possibilities, and opportunities of building cohesive Asian community. P/NP or letter grading.

**185. Capstone Community-Based Research (4)** Seminar, three hours; fieldwork, three hours. Limited to senior departmental majors and minors. Designed to serve as complement to service learning requirement for major and minor and may be used to fulfill capstone requirement for major and minor. Students work as research team, are matched with one or more community groups, and must complete minimum of 40 fieldwork hours. Duties and responsibilities collaboratively determined by instructor, students, and sponsoring organizations. Readings determined in consultation with instructor. Letter grading.

**186. Capstone Research Seminar (4)** Seminar, three hours. Limited to senior departmental majors and minors. Synthesis and application of knowledge students have acquired through prior departmental courses so they can conduct in-depth research or creative-expression project. Themes may vary by

instructor and term. Students pursue independent work related to course theme with guidance from instructor, then share and critique other student work in progress. Letter grading.

**187A. Special Courses in Research Methodologies (4)** Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in multidisciplinary research methodologies in Asian American studies. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Special Courses in Asian American Themes (4)** Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected Asian American themes, including issues in cultural formation, religion, education, social class, economic development, social movement, politics, and public policy. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Special Courses in Asian American Populations and Communities (4)** Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in historical and contemporary issues pertaining to different Asian-origin subgroups and their respective communities. May be repeated for credit with topic change. P/NP or letter grading.

**188. Special Courses in Asian American Studies (4)** Seminar, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Topics in Research Methodologies (4)** Seminar, three to four hours. Limited to juniors/seniors. Variable topics in multidisciplinary research methodologies in Asian American studies. May be repeated for credit with topic change. P/NP or letter grading.

**191B. Topics in Asian American Themes (4)** Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected Asian American themes, including issues in cultural formation, religion, education, social class, economic development, social movement, politics, and public policy. May be repeated for credit with topic change. P/NP or letter grading.

**191C. Topics in Asian American Populations and Communities (4)** Seminar, three to four hours. Limited to juniors/seniors. Variable topics in historical and contemporary issues pertaining to different Asian-origin subgroups and their respective communities. May be repeated for credit with topic change. P/NP or letter grading.

**191F. Topics in Asian American Literature (5)** (Same as English M191C.) Seminar, three or four hours. Enforced prerequisite: English Composition 3 or 3H. Variable specialized studies course in Asian American literature. Topics may include genres (autobiography, novel, poetry, short fiction, or drama); specific nationalities within Asian American community; themes of transnational migration; cross-cultural, interdisciplinary, or interracial negotiation; and gender and queer politics. Reading, discussion, and development of culminating project. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**192. Undergraduate Practicum in Asian American Studies. (2, 4)** Seminar, two or four hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in Asian American studies courses. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. No more than 4 units may be applied toward major; units applied must be taken for letter grade. May be repeated for credit. P/NP or letter grading.

**195. Community or Corporate Internships in Asian American Studies (4)** Tutorial, two hours; fieldwork, eight hours. Requisites: courses 10 or 10W, and 20. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Comparative Approaches to Community and Corporate Internships (4)** (Same as African American Studies M195CE, American Indian Studies M195CE, Chicana/o and Central American Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

**196. Research Apprenticeship in Asian American Studies. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor to learn skills and techniques. May not be applied toward departmental major or minor requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

**197. Individual Studies in Asian American Studies. (2 to 4)** Tutorial, three hours. Requisites: course 10 or 10W or 20 or comparable knowledge in Asian American studies, 3.0 grade-point average or better. Limited to juniors/seniors. Directed reading of scholarly work or supervised research between student and faculty member. No original research or project expected, but tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Asian American Studies (4)** Tutorial, three to four hours. Requisites: two courses from 10 (or 10W), 20, and 30 (or 30W) and one course from 104A through M108, 187A, or 191A. Introduction to research techniques and applications of methodologies in study of Asians and Pacific Islanders in U.S. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in Asian American Studies (4)** Tutorial, three hours. Requisite: course 198A. Course 198B is requisite to 198C. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

**198C. Honors Research in Asian American Studies (4)** Tutorial, three hours. Requisite: course 198B. Completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Asian American Studies. (2 to 4)** Tutorial, three hours. Preparation: 3.0 overall grade-point average. Requisites: courses 10 (or 10W) and 20 or comparable knowledge in Asian American studies. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating research paper or project report required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Historical Perspectives on Asian and Pacific Islander American Communities (4)** Seminar, three hours. Designed for graduate students. Examination of critical issues in Asia and Pacific Islander American history and historiography. Introduction to research in archival and/or oral history methods. S/U or letter grading.

**200B. Critical Approaches to Emerging Issues in Asian and Pacific Islander American Studies (4)** Seminar, three hours. Designed for graduate students. Examination of emergent issues in Asian and Pacific Islander American communities, using selected theoretical approaches. Introduction to research in

social scientific methods such as ethnography, participant observation, interviewing, survey development, or community-based research. S/U or letter grading.

**200C. Critical Issues in Asian and Pacific Islander American Literature and Culture (4)** Seminar, three hours. Designed for graduate students. Examination of critical questions emerging from Asian and Pacific Islander American literacy and cultural criticism and/or practice. Introduction to research in literary and cultural criticism and/or practice. S/U or letter grading.

**200D. Critical Issues in Asian and Pacific Islander American Studies Methods (4)** Seminar, three hours. Designed for graduate students. Critical engagements with methodology in Asian and Pacific Islander studies. Students develop their thesis or capstone projects, including identifying and applying appropriate methodological approaches. S/U or letter grading.

**203. Asian American Research Methods (4)** Seminar, three hours. Introduction to empirical research methods, stressing uses and relevancy in research with ethnic minority populations. Review of characteristics and logical processes of research and applicability of scientific and scholarly inquiry in advancing knowledge. S/U or letter grading.

**213. Asian-Latinos (4)** (Same as Chicana/o and Central American Studies M213.) Seminar, three hours. Limited to graduate students. Examination of historical and contemporary populations of Asian-Latinos in Latin America and U.S. Review and critique of nascent literature on Asian-Latinos and analysis of experience of Asian-Latinos utilizing theoretical frameworks of mestizaje, critical mixed-race theory, and transnationalism. Coverage of often-overlooked Asian contributions to Latin American and Chicano/Latino culture and identity and exploration of unique experience of mixed-race Asian-Latinos. S/U or letter grading.

**215A. Asian American JurisprudenceE. (3, 4)** Lecture, three hours. Course 215A is enforced requisite to 215B. Designed for graduate students. Through judicial opinions, commentary, and historical readings, examination of how American law has shaped demographics, experiences, and possibilities of Asian Americans and also how they shaped American law as well. Concurrently scheduled with Law 315. In Progress grading (credit to be given only on completion of course 215B).

**215B. Asian American JurisprudenceE. (1, 2)** Lecture, three hours. Enforced requisite: course 215A. Designed for graduate students. Continuation of course 215A. Through judicial opinions, commentary, and historical readings, examination of how American law has shaped demographics, experiences, and possibilities of Asian Americans and also how they shaped American law as well. Concurrently scheduled with Law 315. S/U or letter grading.

**222. Colonialism and Law in Pacific (4)** Seminar, three hours. Reading seminar on broad topics of colonialism and law. Survey of anthropological, historical, and legal studies of ways in which colonialism and law operate as methods of social control, order, and surveillance in Asia and Pacific. S/U or letter grading.

**231. Japanese American Resettlement: Meaning and Methods (4)** Seminar, three hours. Designed for graduate students. In-depth analysis of multiple dimensions of Japanese American post-World War II resettlement and research methods needed to study resettlement holistically. S/U or letter grading.

**239. Race, Ethnicity, and Culture as Concepts in Practice and Research (4)** (Same as Community Health Sciences M239.) Seminar, three hours. Integration of cross-cultural findings in healthcare with current American (U.S.) healthcare system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

**C242A. Ethnocommunications I: Introduction to Creating Community Media (4)** Seminar, three hours. Strong verbal communication skills and familiarity with technology required. Introduction to social documentary theory and methodology. Through hands-on production, use of digital video to tell visual stories, reclaim history, and examine social issues related to diverse peoples, cultures, and communities. Viewing of films and interactive media for critique and discussion, guest speakers, basic instruction in use of digital video technology, and group and individual video projects. Concurrently scheduled with course C142A. S/U or letter grading.

**C242B. Ethnocommunications II: Intermediate Creating Community Media (4)** Seminar, three hours. Strong verbal communication skills and familiarity with technology required. Intermediate application of social documentary theory and methodology. Use of digital video to create new approaches to visual storytelling, reclaim history, and examine social issues related to diverse peoples, cultures, and communities. Continuing instruction in use of digital technology and concepts. Topics include videography, composition, sound recording, interviewing techniques, editing, and writing treatments. Completion of community-based documentary required. Concurrently scheduled with course C142B. S/U or letter grading.

**C242C. Ethnocommunications III: Advanced Creating Community Media (4)** Seminar, three hours. Enforced requisite: course C242B. Advanced application of social documentary theory and methodology. Continuing instruction in use of digital technology and concepts. Intensive instruction in proposal writing, videography, composition, sound recording, interviewing techniques, visual storytelling, and editing. Completion of community-based documentary suitable for public exhibition required. Concurrently scheduled with course C142C. S/U or letter grading.

**260. Topics in Asian American Literature (4)** (Same as English M260A.) Seminar, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit. S/U or letter grading.

**261. Theorizing Third World (4)** (Same as Comparative Literature M274.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

**290Q. Social Welfare Policy in Asian American Communities (4)** (Same as Social Welfare M290Q.) Seminar, three hours. Overview of social welfare policy in Asian American communities. Introduction to major social welfare policies and programs in U.S. and impact on Asian American communities. Policy development, approaches, processes of implementation, evaluation, and strategies to effect policy. S/U or letter grading.

**297A. Topics in Asian American Studies (4)** Seminar, three hours. Designed for graduate students. Selected topics in Asian American studies. S/U or letter grading.

**297B. Topics in Asian American Studies: Asian Migration to U.S. (4)** Seminar, three hours. Emphasis on Asia as main regional source for international migrants. Topics include patterns and theories of international migration and their relevance to Asian experience, sending and receiving country perspectives, research and policy issues. S/U or letter grading.

**490. Writing Workshop for Graduate Students (2)** Lecture, one hour; discussion, one hour. Practice in writing reports, grant proposals, abstracts, theses, and article-length research papers. Analyzing rhetorical and stylistic features of essays in various Asian American journals helps students improve both their prose style and editorial abilities. Four units may be applied toward MA degree requirements. May be repeated once for credit. S/U grading.

**495. Supervised Teaching of Asian American Studies (4)** Seminar, three hours. Preparation: apprentice personnel appointment as teaching assistant in Asian American studies. Designed for graduate students. Required of all new teaching assistants. Special course for teaching assistants designed to deal with problems and techniques for teaching introductory Asian American studies courses. Unit credit may be applied toward full-time equivalence but not toward course requirements for MA. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. S/U or letter grading.

**597. Research for and Preparation of MA CapstoneE. (2 to 8)** Tutorial, three hours. Limited to graduate students. Preparation and research for MA capstone. May be repeated for credit. S/U grading.

**598. Research for and Preparation of MA Thesis. (2 to 8)** Tutorial, to be arranged. Preparation of research data and writing of MA thesis. S/U grading.

# Asian Languages and Cultures

## Asian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Visible Language: Study of Writing (5)** (Same as Indo-European Studies M20, Near Eastern Languages M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium BC. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium BC and how it compares to other modern writing systems. P/NP or letter grading.

**30. Languages and Cultures of Asia (5)** Lecture, three hours; discussion, one hour. Comparative perspective on Asian languages, with emphasis on three major East Asian languages—Chinese, Japanese, and Korean—to show what they share and how they differ in terms of linguistic features, historical development, and larger cultural settings in which these three languages are used. P/NP or letter grading.

**60. Introduction to Buddhism (5)** (Same as Religion M60A.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M60W. Knowledge of Asian languages not required. General survey of development of Buddhism in India, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Letter grading.

**60W. Introduction to Buddhism (5)** (Same as Religion M60W.) Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60. Knowledge of Asian languages not required. General survey of Buddhist worldview and lifestyle, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Particular attention to problems involved in study of religion. Satisfies Writing II requirement. Letter grading.

**61. Introduction to Zen Buddhism (5)** (Same as Religion M61.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Introduction to Zen traditions and to interplay between Zen and other fundamental cultural and religious concerns in East Asia. Topics include role of Zen within Buddhist thought and practice, artistic and literary arts, society, and daily life. Letter grading.

**70A. Popular Culture in East Asia: 17th through 19th Centuries (5)** Lecture, three hours; discussion, one hour. Popular culture in China, Japan, Korea, and Vietnam. Topics include popular religion, language, literature, arts, material culture, cinema, and music. Themes include identities, gender, sexuality, and class relations. Letter grading.

**70B. Popular Culture in East Asia: 1895 to 1945 (5)** Lecture, three hours; discussion, one hour. Popular culture in China, Japan, Korea, and Vietnam. Topics include popular religion, language, literature, arts, material culture, cinema, and music. Themes include identities, gender, sexuality, and class relations. Letter grading.

**70C. Popular Culture in East Asia from 1945 (5)** Lecture, three hours; discussion, one hour. Popular culture in China, Japan, Korea, and Vietnam. Topics include popular religion, language, literature, arts, material culture, cinema, and music. Themes include identities, gender, sexuality, and class relations. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Methods in Asian Linguistics (4)** Lecture, three hours; discussion, one hour. Research methodologies for dealing with Asian languages, with emphases on bibliographical, data, and professional resources, issues in analyzing and presenting language examples, explaining language phenomena beyond what is observed, cross-linguistic comparisons, oral presentation skills, and writing reports in organized ways. P/NP or letter grading.

**104. Asian Language Pedagogy (4)** Lecture, three hours; discussion, one hour. Required of all Asian Languages and Linguistics majors. Current issues in teaching Asian languages. Pedagogical grammar, curricular development, social, cultural, and cognitive foundations of Asian language acquisition, best practices in teaching Asian language writing systems, special issues in teaching heritage students, comparisons of K-12 language teaching and college language teaching, assessment methods, and emerging trends in Asian language teaching. P/NP or letter grading.

**120FL. Readings in East Asian Languages (2)** Seminar, two hours. Prerequisite: Chinese 6 or 6A or 6C or Japanese 6 or Korean 6 or 6A. Enforced corequisite: course 120. Additional work in major East Asian languages to enrich and augment work assigned in course 120, including reading, writing, and other exercises in Chinese, Japanese, and Korean. P/NP or letter grading.

**121. Field Methods in Asian Languages and Cultures (3)** Lecture, three hours. Recommended preparation: at least one year of one Asian language. Examination and application of methodologies to better understand language and culture acquisition by working directly with native speaker of Asian language and/or through available materials. One language per term to be selected from languages spoken in Southeast Asia, South Asia, and East Asia. May be repeated for credit. P/NP or letter grading.

**CM124. Teaching and Learning of Heritage Languages (4)** (Same as Near Eastern Languages CM114 and Slavic CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM224. P/NP or letter grading.

**130. Ideas of Culture in East Asian Studies (4)** Lecture, three hours. Knowledge of Asian languages not required. Literature and intellectual discourse of modern Japan and Korea from 1910 to 1945. Letter grading.

**135. Asian Foodways across Borders (4)** Lecture, two and one half hours. Examination of Asian foodways from 19th century to present, looking at how Asian and Western foods have impacted each other as they cross borders. Offers insight into how political, economic, and cultural forces of globalization manifest themselves in everyday life. Focus is on East Asian cuisines, but students are encouraged to incorporate additional information on South and Southeast Asian cuisines. P/NP or letter grading.

**140. Topics in Asian Digital Humanities (4)** Lecture, three hours. Knowledge of Asian languages not required. Examination of how human cultures and digital media production intersect to understand how people connect through production, dissemination, and consumption of digital information, applying methods such as multi-media storytelling, information design, and content analysis in Asian contexts to humanistic questions. May be repeated for credit with topic change. P/NP or letter grading.

**151. Buddhist Literature in Translation (4)** Lecture, three hours. Recommended preparation: prior course on Buddhism or traditional Asian religions. Knowledge of Asian languages not required. Readings from variety of Bud-

dhist literature of Indic and non-Indic origin, with emphasis on key Buddhist themes and critical issues in cross-cultural interpretations of Asian religious texts. Letter grading.

**152. Tibetan Buddhism (4)** Lecture, three hours. Knowledge of Asian languages not required. Survey of thought and practices of Buddhism in Tibet from its beginnings to present. Letter grading.

**155. Buddhism, Film, and Media (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended prerequisite: course M60 (or Religion M60A) or M60W (or Religion M60W). Examination of issues related to Buddhism in globalizing world, with focus on changing and diverse presentations of Buddhism in film, print, and new media. P/NP or letter grading.

**158. Sinophone Literature: Theories and Texts (4)** Lecture, three hours. Preparation: one upper-division humanities course. Survey of foundational theories of Sinophone studies concerning issues such as Chineseness, diaspora, ethnicity, identity, and multilingualism. Reading of key Sinophone literary texts from Asia. Letter grading.

**161. Topics in Asian Religions (4)** Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. In-depth examination of selected topics in one or more religious traditions of Asia. Topics vary, but may include death, gender, and state and religion. May be repeated for credit with topic change. Letter grading.

**162. Buddhist Meditation Traditions (4)** Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Survey of theory and practice of meditation in Buddhism, with emphasis on Theravada and Zen schools. Topics include various typologies of meditation, symbiotic relationship between meditation and soteriology, and processes by which doctrinal innovation prompts changes in meditative praxis. Letter grading.

**163. Buddhism across Boundaries (4)** Lecture, two hours; discussion, one hour. Recommended preparation: prior course on Buddhism or traditional Asian religions. Knowledge of Asian languages not required. Investigation of various themes in development of Buddhist traditions across historical periods as well as national and cultural boundaries, including issues of praxis, politics, and translation. Letter grading.

**164. Buddhism and Early Religious History of Pakistan, Afghanistan, and Central Asia: Introduction (4)** Lecture, three hours. Knowledge of Asian languages not required. Survey of regions and religions of Central Asia, especially Buddhism in Afghanistan and Pakistan. Topics include archaeological, art historical material, and linguistic approaches to history of religions. Letter grading.

**C170. Approaches to Study of Religion (4)** Seminar, three hours. Investigation of many ways in which religion and religions may be studied, including anthropological, sociological, psychological, phenomenological, political, reductionist, and other approaches. Readings of primary and secondary sources of modern scholarship. Concurrently scheduled with course C270. Letter grading.

**184. Women in History: East Asia (4)** Lecture, three hours. Knowledge of Korean not required. Survey of East Asian histories, cultures, and societies from perspective of women and women's empowerment to see how gendered concepts are mediated and reconstructed through negotiations by women and men with processes of political, social, and cultural changes. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Asian Languages and Cultures (1)** Seminar, one hour. Corequisite: course 198A or 198B or 198C or 199. Designed to bring together advanced undergraduate students undertaking individual supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**191A. Variable Topics Research Seminars: Life Writing in East Asia (4)** Seminar, three hours. Research seminar on selected topics. Readings of biography and autobiography as elements of East Asian cultural traditions, with focus rotating between China, Japan, and Korea. Readings in English and relevant East Asian languages, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191B. Variable Topics Research Seminars: Buddhist Studies (4)** Seminar, three hours. Limited to juniors/seniors. Research seminar on selected topics in Buddhist studies. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191H. Honors Research Seminars: Asian Languages and Cultures (4)** Seminar, three hours. Limited to departmental and College honors students. Introduction to research methods and critical approaches to study of Asia in preparation for writing of senior honors thesis. May be repeated for credit. Letter grading.

**193. Speaker Series Seminars: Asian Languages and Cultures (2)** Seminar, two hours. Limited to undergraduate students. Introduction to latest scholarship in field of Asian studies. Attendance at selected scholarly presentations required, as well as sessions with faculty adviser to discuss presentations and published works of speakers. May be repeated for credit. P/NP grading.

**195. Community Internships in Asian Languages and Cultures (4)** Tutorial, one hour; fieldwork, eight hours. Limited to juniors/seniors. Internship in supervised setting in community cultural or organizational setting. Students meet on regular basis with instructor and provide periodic journal reports of their experience. Final paper that combines academic research and knowledge gained from community experience required. Individual contract with supervising faculty member required. P/NP or letter grading.

**198A. Honors Research in Asian Languages and Cultures (4)** Tutorial, three hours. Preparation: one undergraduate departmental seminar. Limited to junior/senior departmental majors. Development of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in Asian Languages and Cultures (4)** Tutorial, three hours. Enforced prerequisite: course 198A. Limited to junior/senior departmental majors. Continuation of work initiated in course 198A. Presentation of research and relevant progress to supervising faculty member. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

**198C. Honors Research in Asian Languages and Cultures (4)** Tutorial, three hours. Enforced prerequisite: course 198B. Limited to junior/senior departmental majors. Completion of research developed in courses 198A, 198B. Presentation of honors project to supervising faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Asian Languages and Cultures (2 to 8)** Tutorial, to be arranged. Recommended preparation: advanced reading knowledge of one Asian language. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated once with consent of instructor. Individual contract required. Letter grading.

## Graduate

**200. Research Methods in East Asian Linguistics (4)** Seminar, three hours. Research methodologies for East Asian languages, with emphasis on compiling bibliographic data and using professional resources for research. Examination of issues in analyzing language examples, theoretical implications of linguistic data, and applications of functional linguistics in order to explain language phenomena. S/U or letter grading.

**201. Proseminar: Approaches to Buddhist Studies (4)** Seminar, three hours. Designed for graduate students in Buddhist studies. Introduction to history of field, bibliography, relations with other disciplines, and current issues and research trends. S/U or letter grading.



**202. Proseminar: Functional Approaches to Japanese/Korean Linguistics (4)** Seminar, four hours. Preparation: three years of Japanese or Korean, one year of any East Asian language, one functional linguistics course. Survey of recent empirical and theoretical research in syntax, semantico-pragmatics, theory of language change, and comparative sociolinguistics in Japanese/Korean. May be repeated for credit with consent of instructors. S/U or letter grading.

**203. Variable Topics in East Asian Linguistics (4)** Seminar, three hours. Advanced course that explores topics in East Asian linguistics through critical reading of current research on Asian languages and in-depth analysis of linguistic data. Topics include linguistic structure, communicative function, pragmatics, language, society, and culture, and language change. May be repeated for credit. S/U or letter grading.

**204A. Issues and Practices in Teaching Asian Languages (4)** Lecture, three hours. Course 204A is enforced requisite to 204B. Critical reading and discussion of major pedagogical issues in teaching Asian languages (chiefly Chinese, Japanese, Korean) as second languages, with focus on second language acquisition theories and best practices as related to Asian language teaching. In Progress grading (credit to be given only on completion of course 204B).

**204B. Issues and Practices in Teaching Asian Languages (4)** Lecture, three hours. Enforced requisite: course 204A. Critical reading and discussion of major pedagogical issues in teaching Asian languages (chiefly Chinese, Japanese, Korean) as second languages, with focus on second language acquisition theories and best practices as related to Asian language teaching. S/U or letter grading.

**205. Variable Topics in East Asian Culture and History (4)** Seminar, three hours. Selected topics in East Asian culture and history, with focus on China, Japan, and Korea. May be repeated for credit with topic change. S/U or letter grading.

**206A. MA Practicum: Issues in Teaching Asian Languages and Classroom Practices (4)** Seminar, two hours; teaching practice, two hours. Training and supervised Asian language practicum in form of in-person, online, and/or peer-based instructional activities for MA students under training to become language instructors at K-12 or postsecondary level. Activities generally involve instruction, tutorial, assessment, material development, and other professional practices, with goal for students to gain actual experience. Discussion includes varied aspects of language teaching as profession. S/U or letter grading.

**206B. MA Practicum: Instructional Apprenticeship in Teaching Asian Languages (4)** Seminar, three hours; teaching practice, two to four hours. Training and supervised Asian language practicum in form of in-person, online, and/or peer-based instructional activities for MA students under training to become language instructors at K-12 or postsecondary level. Activities generally involve lesson design, delivering instructions and tutorials, preparing and performing assessment, material development, and other professional practices, with goal for students to gain actual experience as language teacher. Discussion provides forum to examine varied aspects of language teaching as profession. S/U or letter grading.

**206C. MA Practicum: Best Practices in Teaching Asian Languages (4)** Seminar, three hours; teaching practice, two to four hours. Training and supervised Asian language practicum in form of in-person, online, and/or peer-based instructional activities for MA students under training to become language instructors at K-12 or postsecondary level. Activities generally involve lesson design, delivering instructions and tutorials, preparing and performing assessment, material development, and other professional practices, with goal for students to gain actual experience as language teacher. Discussion provides forum to examine varied aspects of language teaching as profession. S/U or letter grading.

**210. Proseminar: Cultural and Comparative Studies (4)** Seminar, three hours. Designed for graduate students. Introduction to theoretical topics relevant to comparative study of East Asian cultures in modern period. Readings include Western theoretical works balanced with texts taking congruent approaches to East Asian topics. S/U or letter grading.

**215. Seminar: Cultural Studies Theory (2)** Seminar, two hours. Requisite: course 210. Reading and discussion of recent theoretical works in cultural studies. S/U grading.

**216. Seminar: History and Asia (4)** Seminar, three hours. Designed for graduate students. Readings and discussion of major historiographical trends, with focus on how they have been applied to Asia. Topics include Marxist histories, Annales school and cultural history, microhistories, gender, space, historical memory, postcolonial histories, subaltern, and modernity and Asia. S/U or letter grading.

**220A. Seminar: Topics in Cultural Studies (4)** Seminar, three hours. Complements course 210. Further investigation of methodology and materials of cultural studies in connection with specific topics selected by instructors. May be repeated for credit. In Progress grading (credit to be given only on completion of course 220B).

**220B. Seminar: Topics in Cultural Studies (4)** Seminar, three hours. Complements course 210. Further investigation of methodology and materials of cultural studies in connection with specific topics selected by instructors. May be repeated for credit. Letter grading.

**222A. Corpus Linguistics (4)** Seminar, three hours. Construction and exploitation of computerized language corpora for studying issues in areas such as lexicology, discourse grammar, language change and variation, language learning, and teaching. Discussion of special issues in working with East Asian language corpora. In Progress grading (credit to be given only on completion of course 222B).

**222B. Corpus Linguistics (4)** Seminar, three hours. Construction and exploitation of computerized language corpora for studying issues in areas such as lexicology, discourse grammar, language change and variation, language learning, and teaching. Discussion of special issues in working with East Asian language corpora. S/U or letter grading.

**CM224. Teaching and Learning of Heritage Languages (4)** (Same as Near Eastern Languages CM214 and Slavic CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM124. S/U or letter grading.

**230A. Seminar: Theoretical Topics in East Asian Literature (4)** Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Concerns of literary theory that are brought to fore by reading of literature from or about East Asia. Readings from both Western and Eastern theorists; issues of translation, comparison, and categorization. In Progress grading (credit to be given only on completion of course 230B).

**230B. Seminar: Theoretical Topics in East Asian Literature (4)** Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Concerns of literary theory that are brought to fore by reading of literature from or about East Asia. Readings from both Western and Eastern theorists; issues of translation, comparison, and categorization. Letter grading.

**240A. Seminar: Topics in East Asian Literary History (4)** Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Critical issues common to literary historiography in East Asia, including periodization, canon, ideology, interaction between high and low culture, written and oral, etc. In Progress grading (credit to be given only on completion of course 240B).

**240B. Seminar: Topics in East Asian Literary History (4)** Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Critical issues common to literary historiography in East Asia, including periodization, canon, ideology, interaction between high and low culture, written and oral, etc. Letter grading.

**243. Translation Workshop: East Asian Texts (2)** Seminar, two hours. Requisite: Chinese 200A or Japanese 200 or Korean 200. Translation, grammatical analysis, and discussion of selections from premodern texts that enjoyed classical status throughout East Asia. S/U grading.

**245A. Seminar: Position of Modernity in East Asian Literature (4)** Seminar, three hours. Preparation: at least five years of one East Asian language. Designed for graduate students. Conceptual architecture and archaeology of modernity, with readings largely from European sources. In-class debate probes relevance of these readings for work as Asianists. In Progress grading (credit to be given only on completion of course 245B).

**245B. Seminar: Position of Modernity in East Asian Literature (4)** Seminar, three hours. Preparation: at least five years of one East Asian language. Designed for graduate students. Focus on Asian writings. Letter grading.

**255. Topics in Southeast Asian Literature and/or Cinema (4)** Seminar, three hours. Knowledge of one Southeast Asian language recommended but not required. Theoretical concerns raised by works from Southeast Asia, one Southeast Asian nation, and/or Southeast Asian diasporas. Critical and his-

torical examination of literary and/or film representations connected to practices of empire, nation, diaspora, and globalization. May be repeated for credit. S/U or letter grading.

**261A. Current Issues in Buddhist Studies (2)** Seminar, 90 minutes. Knowledge of Asian languages not required. Critical reading and discussion of recent scholarship in Buddhist studies and closely related fields. May be repeated for credit. S/U grading.

**261B. Current Issues in Buddhist Studies (2)** Seminar, 90 minutes. Knowledge of Asian languages not required. Critical reading and discussion of recent scholarship in Buddhist studies and closely related fields. May be repeated for credit. S/U grading.

**261C. Current Issues in Buddhist Studies (2)** Seminar, 90 minutes. Knowledge of Asian languages not required. Critical reading and discussion of recent scholarship in Buddhist studies and closely related fields. May be repeated for credit. S/U grading.

**265A. Seminar: Selected Topics in Buddhist Studies (4)** Seminar, three hours. Coverage varies. May be repeated for credit. In Progress grading (credit to be given only on completion of course 265B).

**265B. Seminar: Selected Topics in Buddhist Studies (4)** Seminar, three hours. Coverage varies. May be repeated for credit. Letter grading.

**C270. Approaches to Study of Religion (4)** Seminar, three hours. Investigation of many ways in which religion and religions may be studied, including anthropological, sociological, psychological, phenomenological, political, reductionist, and other approaches. Readings of primary and secondary sources of modern scholarship. Concurrently scheduled with course C170. Letter grading.

**281A. Field Methods for Study of East Asian Oral Traditions (4)** Seminar, three hours. Description and evaluation of modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event, providing hands-on experience in fieldwork and archiving methods. Consideration of approaches ranging from written transcription and textualization to audio and video presentations. In Progress grading (credit to be given only on completion of course 281B).

**281B. Field Methods for Study of East Asian Oral Traditions (4)** Seminar, three hours. Description and evaluation of modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event, providing hands-on experience in fieldwork and archiving methods. Consideration of approaches ranging from written transcription and textualization to audio and video presentations. S/U or letter grading.

**292. Japan in Age of Empire (4)** (Same as Anthropology M247P and History M286.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

**293. Graduate Student Colloquium (4)** Research group meeting, three hours. Designed to provide graduate students in Asian studies with opportunity to present their research to other students and faculty members. S/U grading.

**297. Life Writing in East Asia (4)** Seminar, three hours. Readings of biography and autobiography as elements of East Asian cultural traditions, with focus rotating between China, Japan, and Korea. Readings in English and relevant East Asian languages. Letter grading.

**299. Independent Study. (2 to 6)** Tutorial, to be arranged. Designed for graduate students. Guided research and writing of research paper. May be repeated, but only 4 units may be applied toward MA degree. May not be applied toward PhD degree. S/U or letter grading.

**301. Teaching East Asian Language as Foreign Language (4)** Lecture, four hours. S/U or letter grading.

**495. Teaching Asian Languages at College Level (4)** Seminar, three hours. Preparation: appointment as teaching assistant in East Asian languages and cultures or South and Southeast Asian languages and cultures. Study in team-teaching, teaching methodology, developing course materials, and testing. Participation in peer observations and workshops required. Students receive unit credit toward full-time equivalence but not toward any degree requirements. S/U grading.

**496A. Teaching Asian Languages Practicum (2)** Seminar, two hours. Preparation: appointment as teaching assistant in Asian languages. Study in teaching methodologies, assessment, and developing course materials. S/U grading.

**496C. Computer Technologies for Teaching College-Level Chinese (2)** Lecture, two hours. Intended for current or potential teaching assistants in Chinese. Introduction to tools and technology designed to enrich classroom

learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

**496E. Computer Technologies for Teaching College-Level East Asian Languages (2)** Lecture, two hours. Intended for current or potential teaching assistants in East Asian languages. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

**496J. Computer Technologies for Teaching College-Level Japanese (2)** Lecture, two hours. Intended for current or potential teaching assistants in Japanese. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

**496K. Computer Technologies for Teaching College-Level Korean (2)** Lecture, two hours. Intended for current or potential teaching assistants in Korean. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Studies (2 to 4)** Tutorial, to be arranged. S/U grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (4 to 8)** Tutorial, to be arranged. S/U grading.

**598. Research for and Preparation of MA Thesis. (4 to 8)** Tutorial, to be arranged. Maximum of 8 units may be applied toward MA degree requirements. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (4 to 8)** Tutorial, to be arranged. S/U grading.

## Chinese Courses

### Lower Division

**1. Elementary Modern Chinese (5)** Lecture, three hours; discussion, two hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Introduction to fundamentals of standard Chinese, including pronunciation, grammar, and Chinese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. P/NP or letter grading.

**1A. Elementary Modern Chinese for Advanced Beginners (5)** Lecture, three hours; discussion, two hours. Recommended preparation: ability to speak and understand Mandarin or other Chinese dialects at elementary levels. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed for students who already have certain listening and speaking skills in Mandarin or other Chinese dialects at elementary levels. Training in all four basic language skills (speaking, listening, reading, and writing). P/NP or letter grading.

**2. Elementary Modern Chinese (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 1 with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

**2A. Elementary Modern Chinese for Advanced Beginners (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 1A with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 1A. P/NP or letter grading.

**3. Elementary Modern Chinese (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 2 with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

**3A. Elementary Modern Chinese for Advanced Beginners (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 2A with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 2A. P/NP or letter grading.

**3R. Accelerated Modern Chinese for Advanced Beginners (5)** Lecture, three hours; discussion, one hour. Requisite: Chinese placement test or department consent. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. For students who wish to complete one-year foreign language requirement at accelerated pace. P/NP or letter grading.

**4. Intermediate Modern Chinese (5)** Lecture, three hours; discussion, one hour. Requisite: course 3 or 8 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters. P/NP or letter grading.

**4A. Intermediate Modern Chinese for Advanced Students (5)** Lecture, three hours; discussion, one hour. Requisite: course 3A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed for students who already have certain listening and speaking skills in Mandarin or other Chinese dialects at intermediate levels. Training in all four basic language skills (speaking, listening, reading, and writing). P/NP or letter grading.

**5. Intermediate Modern Chinese (5)** Lecture, three hours; discussion, one hour. Requisite: course 4 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

**5A. Intermediate Modern Chinese for Advanced Students (5)** Lecture, three hours; discussion, one hour. Requisite: course 4A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4A. P/NP or letter grading.

**5C. Mandarin for Cantonese Speakers (5)** Lecture, four hours. Enforced preparation: Chinese placement test. Designed for students who are Cantonese speakers and familiar with Chinese characters and who need to improve their pronunciation of standard Mandarin dialect. P/NP or letter grading.

**6. Intermediate Modern Chinese (5)** Lecture, three hours; discussion, one hour. Requisite: course 5 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

**6A. Intermediate Modern Chinese for Advanced Students (5)** Lecture, three hours; discussion, one hour. Requisite: course 5A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 5A. P/NP or letter grading.

**6C. Mandarin for Cantonese Speakers (5)** Lecture, four hours. Enforced requisite: course 5C or Chinese placement test. Designed for students who are Cantonese speakers and familiar with Chinese characters and who need to improve their pronunciation of standard Mandarin dialect. Completion of course 6C is equivalent to completion of course 6. P/NP or letter grading.

**8. Elementary Chinese: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Chinese, including pronunciation, grammar, and Chinese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

**8A. Elementary Modern Chinese for Advanced Beginners: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1A, 2A, and 3A. Designed for students who already have some listening and speaking skills in Mandarin Chinese but do not have any reading and writing skills and for students who speak Chinese dialect other than Mandarin at home and have some knowledge of Chinese characters (i.e., can read some basic Chinese). Coverage of listening, speaking, reading, and writing skills. Offered in summer only. P/NP or letter grading.

**10. Intermediate Modern Chinese: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Recommended preparation: course 3, 3A, or 8, or Chinese placement test or courses equivalent to elementary-level Chinese. Second-

year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters. Completion of course 10 is equivalent to completion of course 6. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**30. Chinese Language, Society, and Culture (4)** Lecture, two hours; discussion, two hours. Recommended preparation: one to two years of college-level Chinese. Exploration of relationship between Chinese language, society, and culture. Discussion of fundamental role that language plays in Chinese social life and cultural practices while simultaneously exploring how social and cultural factors impact ways in which Chinese language is organized. Main focus on language and thought patterns, language and gender, language and politics, language and commerce, language and law, language and arts, and language and globalization. P/NP or letter grading.

**40. Popular Culture in Modern Chinese Societies (5)** Lecture, three hours; discussion, one hour. Examination of modern Chinese popular culture in China, Taiwan, Hong Kong, and overseas Chinese communities. From fiction to film, music to MTV, and cartoons to karaoke, probing of popular as it has manifested itself in Chinese societies and tracing of its development over last century. P/NP or letter grading.

**50. Chinese Civilization (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50W. Knowledge of Chinese not required. Introduction to most important aspects of Chinese culture. Topics include early Chinese civilization, historical development of Chinese society, issues of ethnicity, Chinese language and philosophy, and early scientific and technological innovation. P/NP or letter grading.

**50W. Chinese Civilization (5)** Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 50. Knowledge of Chinese not required. Introduction to most important aspects of Chinese culture. Topics include early Chinese civilization, historical development of Chinese society, issues of ethnicity, Chinese language and philosophy, and early scientific and technological innovation. Satisfies Writing II requirement. Letter grading.

**60. Introduction to Chinese Religions (5)** (Same as Religion M60B.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M60W. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. P/NP or letter grading.

**60W. Introduction to Chinese Religions (5)** (Same as Religion M61W.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. Satisfies Writing II requirement. Letter grading.

**70. Introduction to Traditional Chinese Literature (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 70W. Prior knowledge of Chinese culture, literature, or language not required. Introduction to pre-20th-century Chinese literary traditions, including selections from poetry, prose, fiction, and drama. P/NP or letter grading.

**80. Chinese Cinema: Pictures, Prisms, Products, Projections (5)** Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. Introduction to history and major themes of Chinese cinema. Representative films studied in contexts of culture, society, politics, and economics, with reflections on changing meanings of both Chinese and cinema. May not be repeated for credit. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Chinese Culture (4)** Lecture, three hours. Knowledge of Chinese language or culture not required. Variable topics course covering many different aspects of Chinese culture. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Advanced Modern Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 6 or 10 with grade of C or better or Chinese placement test. Course 100A with grade of C or better or Chinese placement test is enforced requisite to 100B; course 100B with grade of C or better or Chinese placement test is enforced requisite to 100C. Third-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

**100B. Advanced Modern Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100A with grade of C or better or Chinese placement test. Third-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

**100C. Advanced Modern Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100B with grade of C or better or Chinese placement test. Third-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

**100D. Advanced Modern Chinese for Heritage Speakers (4)** Lecture, three hours; discussion, two hours. Enforced requisite: course 6A with grade of C or better or Chinese placement test. Course 100D with grade of C or better or Chinese placement test is enforced requisite to 100E; course 100E with grade of C or better or Chinese placement test is enforced requisite to 100F. Third-year Chinese for heritage speakers. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

**100E. Advanced Modern Chinese for Heritage Speakers (4)** Lecture, three hours; discussion, two hours. Enforced requisite: course 100D with grade of C or better or Chinese placement test. Third-year Chinese for heritage speakers. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

**100F. Advanced Modern Chinese for Heritage Speakers (4)** Lecture, three hours; discussion, two hours. Enforced requisite: course 100E with grade of C or better or Chinese placement test. Third-year Chinese for heritage speakers. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

**100I. Advanced Modern Chinese: Intensive (12)** Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 6 or 10 with grade of C or better or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 100A, 100B, and 100C. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. Offered in summer only. P/NP or letter grading.

**101A. Advanced Readings in Modern Chinese (4)** Lecture, two hours; discussion, two hours. Requisite: course 100C or 100F or 100I or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on China. Topics from magazines, journals, and books related to humanities and social sciences. May be taken independently for credit. Letter grading.

**101B. Advanced Readings in Modern Chinese (4)** Lecture, two hours; discussion, two hours. Requisite: course 100C or 100F or 100I or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on China. Topics from magazines, journals, and books related to humanities and social sciences. May be taken independently for credit. Letter grading.

**101C. Advanced Readings in Modern Chinese (4)** Lecture, three hours; discussion, one hour. Requisite: course 101B or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on China. Topics from magazines, journals, and books related to humanities and social sciences. May be taken independently for credit. P/NP or letter grading.

**102A. Advanced Chinese for International Business (4)** Lecture, three hours; discussion, one hour. Requisite: course 6 or 10 with grade C or better or Chinese placement test. Not open to native speakers. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Focus on oral and written business communication, cross-cultural communication, social etiquette in business conduct, Chinese economic and business climate, language of business and trade regulations, resources and environment, and business case studies. Letter grading.

**102B. Advanced Chinese for International Business (4)** Lecture, three hours; discussion, one hour. Requisite: course 6 or 10 with grade C or better or Chinese placement test. Not open to native speakers. Doing business with China and understanding Chinese economy and business conducts require advanced level of Chinese language proficiency and deep understanding of Chinese society and culture. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Focus on oral and written business communication, cross-cultural communication, social etiquette in business conduct, Chinese economic and business climate, language of business and trade regulations, resources and environment, and business case studies. Letter grading.

**102I. Business Chinese (8)** Lecture, eight hours; discussion, eight hours. Recommended preparation: two years of college-level Chinese. Not open to native speakers. Doing business with China and understanding Chinese economy and business conducts require intermediate to advanced level of Chinese language proficiency and deep understanding of Chinese society and culture. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Oral and written business communication, social etiquettes in business conduct, Chinese economic and business climate, business law and regulations, resources and environment, and business case studies. Offered in summer only. P/NP or letter grading.

**103. Topics in Chinese Language and Culture (4)** Lecture, two hours; discussion, two hours. Recommended preparation: one to two years of college-level Chinese. Chinese language and culture for special purposes. Exploration of interdependent relation between Chinese language and culture. Introduction to basic concepts in sociocultural linguistics, discourse analysis, and technology to analyze Chinese language and cultural conventions expressed through verbal and non-verbal linguistic devices. Major coverage on language use as reflected in various types of media: film, television, Internet, advertisement, etc. May be repeated for credit. P/NP or letter grading.

**105A. Advanced Chinese Rhetoric and Critical Thinking (4)** Lecture, three hours. Requisite: Chinese placement test. Designed for students who have completed secondary education or equivalent in Chinese. Focus on developing sophisticated Chinese rhetoric strategies in speaking and writing and critical thinking skills through use of Chinese language. Chinese texts and

multimedia materials used as basis for in-depth analysis and understanding of contemporary topics in Chinese language, culture, and society. May be taken independently for credit. Letter grading.

**105B. Advanced Chinese Rhetoric and Critical Thinking (4)** Lecture, three hours. Requisite: Chinese placement test. Designed for students who have completed secondary education or equivalent in Chinese. Focus on developing sophisticated Chinese rhetoric strategies in speaking and writing and critical thinking skills through use of Chinese language. Chinese texts and multimedia materials used as basis for in-depth analysis and understanding of contemporary topics in Chinese language, culture, and society. May be taken independently for credit. Letter grading.

**C107A. Academic/Professional Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with course C207A. P/NP or letter grading.

**C107B. Academic/Professional Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with course C207B. P/NP or letter grading.

**108FL. Special Studies: Readings in Chinese (2)** Seminar, two hours. Enforced requisite: course 100C or 100I or Chinese placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Chinese to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Chinese (2)** Tutorial, two hours. Requisite: course 100C or Chinese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Chinese. May be repeated for credit. P/NP or letter grading.

**110A. Introduction to Classical Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or Chinese placement test. Course 110A is enforced requisite to 110B, which is enforced requisite to 110C. Grammar and readings in selected premodern texts. P/NP or letter grading.

**110B. Introduction to Classical Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 110A. Grammar and readings in selected premodern texts. P/NP or letter grading.

**110C. Introduction to Classical Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 110B. Grammar and readings in selected premodern texts. P/NP or letter grading.

**C120. Introduction to Chinese Linguistics (4)** Lecture, three hours; discussion, one hour. Recommended preparation: one to two years of college-level Chinese. Introduction to Chinese sound system, writing system and its reform, regional differences, major structural features, language in society and in cultural practices. Concurrently scheduled with course C240. Letter grading.

**124. Taiwanese Language and Culture (4)** Lecture, two hours; discussion, one hour. Enforced requisite: course 3 or 8 or Chinese placement test. Taiyu, or Taiwanese (also known as Minnan, Hoklo, or Hokkien, depending on context or region), is language that most Taiwanese people use in daily lives, including everyday interaction and communication, entertainment, social and cultural events, etc. Examination of various manifestations of Taiyu in different forms of cultural production, including cinema, television series, pop music, animation, Gezai opera, glove puppetry, and other media. Discussion also of how these media have represented Taiwan's society and shaped its cultural landscape. P/NP or letter grading.

**125. Taiwanese Language and Expressive Cultures (4)** Lecture, two hours; discussion, one hour. Enforced requisite: course 3 or 8 or Chinese placement test. Taiyu, or Taiwanese (also known as Minnan, Hoklo, or Hokkien, depending on context or region), is language that most Taiwanese people use in daily lives, including everyday interaction and communication, entertainment, social and cultural events, etc. Expressive culture is one way by which group of people express their ideas, emotions, values, ideologies, and belief systems through sensorial and aesthetic performances germane to everyday life. Investigation of expressive cultures through Taiyu language is important way to understand multi-faceted society of Taiwan as vital site of cultural production. Examination of various manifestations of Taiyu in different forms of cultural production including pop music; traditional and modern theatre including

Gezai opera, glove puppetry, and others; documentary; and other media. Discussion also of how these media have represented Taiwan's society and shaped its cultural landscape. P/NP or letter grading.

**130A. Readings in Modern Chinese Literature (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100B or Chinese placement test. Readings and discussion of works of modern Chinese literature. May be taken independently for credit. Letter grading.

**130B. Readings in Modern Chinese Literature (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100B or Chinese placement test. Readings and discussion of works of modern Chinese literature. May be taken independently for credit. Letter grading.

**131. World Sinophone Literature: Theories and Texts (4)** Lecture, two hours; discussion, one hour. Readings in original language. Exploration of Sinophone as analytic category for literature written in Sinitic languages. Theories of Sinophone and literary texts from Taiwan, Hong Kong, Malaysia, China, and elsewhere. Letter grading.

**135. Chinese-Language Film and Culture (4)** Lecture, two hours; discussion, one hour; film viewing, three hours. Enforced requisite: course 100C or 100I or Chinese placement test. Viewing and discussion of Chinese films, along with relevant readings in Chinese. Letter grading.

**C137. How to Read Chinese Poetry (4)** Lecture, two and one half hours; discussion, one hour. From earliest vestiges of Chinese poetry more than two thousand years ago, to doors of contemporary Chinese homes, and to San Francisco's Angel Island in late 19th century, few students of China (or pre-modern East Asia) go far without suddenly encountering pervasive presence of Chinese poetry (shi). Examination of why poetry, roles poetry plays in Chinese culture, and how to read it. Basic beginning in learning how to read Chinese classical poetry. Study is topical and accumulative, designed to have effect of building blocks and progressive overlays. Introduction to language, forms, and history of shi poetry. Study of smallest integral unit of Chinese lyric poetry, individual words and their selection; formal elements and rhetorical features; modes of perception and how it governs lyric description, narration, and argument. Consideration of presuppositions of what poetry is and how it is to be read. Concurrently scheduled with course C237. P/NP or letter grading.

**C138. Travel Writing in Premodern China (4)** Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Exploration of travel writing in China, with focus on English translations of works by native writers and by foreign visitors through centuries. Concurrently scheduled with course C238. Letter grading.

**139. Gardens in China (4)** Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Interdisciplinary survey of historic and literary gardens in China, with focus on English translations of texts by native writers and recent Western scholarship. Letter grading.

**140A. Readings in Classical Chinese Literature: Poetry (4)** Lecture, three hours. Enforced requisite: course 110C. Advanced classical Chinese. Readings and discussion of works of premodern Chinese literature. May be taken independently for credit. Letter grading.

**140B. Readings in Classical Chinese Literature: Prose (4)** Lecture, three hours. Enforced requisite: course 110C. Advanced classical Chinese. Readings and discussion of works of premodern Chinese literature. May be taken independently for credit. Letter grading.

**140C. Readings in Classical Chinese Literature: Fiction (4)** Lecture, three hours. Enforced requisite: course 110C. Advanced classical Chinese. Readings and discussion of works of premodern Chinese literature. Each course may be taken independently for credit. Letter grading.

**140D. Readings in Classical Chinese Literature: Philosophical Texts (4)** Lecture, three hours. Enforced requisite: course 110C. Advanced classical Chinese. Readings and discussion of works of premodern Chinese literature. May be taken independently for credit. Letter grading.

**C144. Translation Workshop: Modern Chinese Texts (4)** Lecture, three hours; discussion, one hour. Preparation: bilingual competency in Chinese and English. Workshop on Chinese-English literary translation, designed to hone and improve translation skills. Focus on close readings and analysis of original texts against published English translations and actual translation work. May include interpretation segment, designed to improve interpretation skills. Concurrently scheduled with course C244. P/NP or letter grading.

**C150A. Lyrical Traditions (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Readings in English translation of poetic and critical writings of traditional China, with emphasis on development of subjectivity and modes of address. Concurrently scheduled with course C250A. P/NP or letter grading.

**C150B. Chinese Literature in Translation: Traditional Narrative and Fiction (4)**

Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Examination of formation and development of Chinese narrative traditions from Tang to mid-Qing periods (7th-18th centuries). Readings from biographical writings, fiction, drama, legal cases, etc., with emphasis on different narrative conventions and their cultural assumptions and intersections. Exploration of important issues in context of imperial China, including order and chaos, self and other, desire and transcendence, gender norms and transgression, violence and justice. May be taken independently for credit. Concurrently scheduled with course C250B. Letter grading.

**151. Chinese Literature in Translation: Modern Literature (4)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Chinese not required. Lectures and reading of representative works from 1900 to present in English translation. Letter grading.

**152. Topics in Contemporary Chinese Literature and Culture (4)** Lecture, two hours; discussion, one hour. Knowledge of Chinese not required. Investigation of various topics in contemporary Chinese literature and culture, including politics and poetics of Chinese postmodernism, nativism, feminism, mass culture, and media. Letter grading.

**153. Chinese Immigrant Literature and Film (4)** (Same as Asian American Studies M130B and Comparative Literature M171.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

**154. Introduction to Chinese Cinema (4)** Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. History of Chinese-language cinemas, with emphasis on mainland China. Examination of film style and aesthetics, as well as contexts of industry, economics, politics, culture, and society. May not be repeated for credit. Letter grading.

**155. Topics in Chinese Cinema (4)** Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. Critical study of films from China, Hong Kong, Taiwan, and Chinese diaspora. Examination of aesthetics, genres, directors and stars, other arts and media, and cultural and political histories. May be repeated for credit with topic change. P/NP or letter grading.

**C156. Variable Topics in Culture and Society in Taiwan (4)** Lecture, three hours; discussion, one hour. Designed for seniors. Knowledge of Chinese not required. Examination of relationship between culture (art, literature, film) and society in Taiwan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C257. Letter grading.

**157. Contemporary Chinese Popular Culture (4)** Lecture, three hours; discussion, one hour. Examination of various aspects of modern and contemporary popular culture in China, Taiwan, and Hong Kong from cultural studies perspective. Genres and media include literature, print culture, cinema, martial arts film and fiction, television, radio, pop music, visual arts, fashion, advertising, and cyberculture. P/NP or letter grading.

**159. Variable Topics in Culture and Society in China (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese language not required. Examination of relationship between culture (art, literature, history, film) and society in China. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**CM160. Chinese Buddhism (4)** (Same as Religion M161A.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Concurrently scheduled with course C260. Letter grading.

**165. Introduction to Chinese Buddhist Texts (4)** Lecture, three hours; discussion, one hour. Recommended prerequisite: course 100A or 110B or Japanese 110A or Korean 100A or Chinese placement test. Readings in premodern Buddhist texts written in literary Chinese and taken from translated Indian sutras, indigenous exegetical materials, Chinese apocryphal scriptures, and Ch'an writings. Problems in translation from Indo-European languages into Chinese; evolution of Chinese Buddhist terminology. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

**174. Chinese Strategic Thought (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction to early Chinese narratives and theories of military, diplomatic, and rhetorical strategy. Letter grading.

**C175. Introduction to Chinese Thought (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 BCE), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Concurrently scheduled with course C275. Letter grading.

**175SL. Community-Based Introduction to Chinese Thought (4)** Seminar, three hours; fieldwork, two hours. Knowledge of Chinese not required. Community-based survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 BCE), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Service learning component includes meaningful work with community partners, such as local schools, selected in advance by instructor. Letter grading.

**176. Neo-Confucianism (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Examination of movement to revitalize and reinterpret teachings of Confucius during Tang, Song, Yuan, and Ming dynasties, with consideration of both neo-Confucian philosophy and social action. Letter grading.

**180. Chinese Mythology and Supernatural (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of corpus of traditional Chinese mythology, with focus on examples preserved in variety of early texts, later evolutions in dramatic and fictional works, and evidence from visual arts. Letter grading.

**182. Archaeology of Early Global Trade and Piracy (4)** Lecture, three hours; discussion, one hour. Exploration of role of trade and piracy at threshold of globalization (13th to 17th century), with focus on continuity and transformation in Asiatic trade network in response to early global trade. Investigation based on archaeological study of porcelain, tracing movement from kilns around Chinese trading ports to shipwrecks and consumer societies in Southeast Asia and colonial Americas. As one of most important commodities on trans-Pacific voyage, close association of porcelain production and trade with international piracy in traditional historiography presents new angle for understanding dynamics of early global trade and industries. Letter grading.

**183. Archaeological Landscapes of China (4)** (Same as Anthropology M116R.) Lecture, three hours; discussion, one hour (when scheduled). De-classified space images from Cold War era and open remote sensing data of 21st century provide new opportunities for studying landscape transformation in historical China. Combining lectures, library research, and hands-on analysis of archaeological sites on satellite images, investigation of changing historical and archaeological landscape in China during last 5,000 years. Social processes at various scales, from emergence of early cities to rise of metropolitan centers and formation of imperial landscapes. P/NP or letter grading.

**184. Crime, Law, and Punishment in Traditional China (4)** Lecture, three hours; discussion, one hour. Preventing crime and administering justice are important parts of any society, but these are not straightforward or simple processes. What is crime? Are there crimes so terrible that they merit special kinds of punishment? How is punishment decided and by whom? What happens if justice is not carried out? Consideration of these questions as they apply to premodern China from multiple perspectives: legal codes and casebooks, literary re-imaginings of trials, depictions of postmortem punishment, and tales of supernatural retribution. Discussion of how legal and penal systems of China have been represented in West. Letter grading.

**185. Food and Love in Chinese Culture (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Based on studies of cultural, historical, anthropological, and archaeological materials, introduction to how Chinese have been engaging themselves in fields of food eating and love making. Letter grading.

**186. Archaeology in China (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Early Chinese study of their own past, types of artifacts, beginnings of scientific archaeology, and surveys of major excavations of sites of all periods. Letter grading.

**187. Chinese Etymology and Calligraphy (4)** Lecture, three hours; discussion, one hour. Recommended prerequisite: course 3. Coverage of (1) development of Chinese writing system from pottery inscriptions 6,000 years ago to modern simplified forms and studies of six scripts principles that were used to form Chinese characters and (2) aesthetic training of calligraphic art and its appreciation, with focus on ways of recognizing and interpreting cursive style, common form of handwriting. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activ-

ities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Classical China (4)** Seminar, three hours. Designed for juniors/seniors. Research seminar on selected topics in premodern Chinese literature, thought, and culture. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191B. Variable Topics Research Seminars: 20th-Century China and Taiwan (4)** Seminar, three hours. Designed for juniors/seniors. Research seminar on selected topics in modern and contemporary literature and culture from China and Taiwan. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**197. Individual Studies in Chinese (4)** Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Chinese. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

## Graduate

**200A. Research Methods in Chinese (4)** Seminar, three hours. Requisite: course 110C. Lectures and discussion designed to develop basic skills in using traditional Chinese research materials. Topics include classical dictionaries; sinological indices; bibliographical, biographical, and geographical sources; encyclopedias; anthologies; rare editions; illustrated matter and calligraphy. Letter grading.

**200B. Proseminar: Premodern Chinese Literature (4)** Seminar, three hours. Introduction to major bibliographical and methodological resources in field of premodern Chinese literature, with focus on research tools in field and on scholarship in English on major literary genres, periods, and authors. Letter grading.

**200C. Proseminar: Modern Chinese Literature and Cinema (4)** Seminar, three hours. Introduction to major bibliographical and methodological resources in fields of modern Chinese literary and cinematic studies, with focus on theoretical tools, historical knowledge, and critical trends. Letter grading.

**201. China—Seminar: Classical Historiography and Readings in Classical Studies (4)** (Same as History M281.) Seminar, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents. Letter grading.

**202. China Studies: Discipline, Methods, Debates (2)** (Same as History M280.) Seminar, two hours. Introduction to study of China as practiced in humanities and social sciences disciplines. S/U grading.

**205. Critical Issues in Chinese and Sinophone Literature (4)** Seminar, three hours. Methodology course intended for graduate students in 20th-century Chinese literature and culture. Discussion of major theoretical and textual issues and methods. Letter grading.

**C207A. Academic/Professional Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with course C107A. S/U or letter grading.

**C207B. Academic/Professional Chinese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with course C107B. S/U or letter grading.

**209. Issues in Sinophone Literature (4)** Seminar, three hours. Exploration of selected topics and issues in Sinophone literature, literature written in Sinitic languages by ethnic minority writers in China, and literature written by those living outside China across world, especially in Malaysia, Taiwan, Singapore, and the U.S. S/U or letter grading.

**210. Modern Chinese Literary History (4)** Lecture, three hours. Designed for graduate students. Discussion of history of modern Chinese literature, focusing on sources, controversies, major literary genres, and critical approaches to studying relationship between literature and history. Letter grading.

**211A. Seminar: Classical Chinese Poetry (4)** Seminar, three hours. Preparation: reading knowledge of literary Chinese. Topics rotate among major textual traditions and chronological periods. Emphasis on philological, critical, and historical approaches. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 211B).

**211B. Seminar: Classical Chinese Poetry (4)** Seminar, three hours. Preparation: reading knowledge of literary Chinese. Topics rotate among major textual traditions and chronological periods. Emphasis on philological, critical, and historical approaches. May be repeated for credit with consent of instructor. Letter grading.

**212. Topics in Chinese Poetry (4)** Readings/discussion, three hours. Selected readings from classical poetic tradition, with focus on individual poets, themes, or other critical issues. May be repeated for credit with consent of instructor. Letter grading.

**213A. Chinese-Language Cinemas (4)** Seminar, three hours; film-viewing laboratory, two hours. Advanced topics in Chinese-language cinemas. Examination of theory and methodology, historiography, industry and institutions, style and aesthetics, major genres and artists, other arts and media, other cinematic traditions, and social contexts. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 213B).

**213B. Chinese-Language Cinemas (4)** Seminar, three hours; film-viewing laboratory, two hours. Advanced topics in Chinese-language cinemas. Examination of theory and methodology, historiography, industry and institutions, style and aesthetics, major genres and artists, other arts and media, other cinematic traditions, and social contexts. May be repeated for credit with consent of instructor. Letter grading.

**220A. Theoretical Approaches to Chinese and Sinophone Cultures (4)** Seminar, three hours. Discussions to be framed by Western literary and cultural theory, investigating both challenges and limitations Western theory may pose for Chinese literary and cultural studies. Specific topics vary from year to year. In Progress grading (credit to be given only on completion of course 220B).

**220B. Theoretical Approaches to Chinese and Sinophone Cultures (4)** Seminar, three hours. Discussions to be framed by Western literary and cultural theory, investigating both challenges and limitations Western theory may pose for Chinese literary and cultural studies. Specific topics vary from year to year. Letter grading.

**224A. Seminar: Selected Topics in Chinese Linguistics (4)** Seminar, three hours. Critical reading and discussion of selected topics in Chinese functional linguistics (discourse and grammar, corpus linguistics, sociolinguistics, language change). May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 224B).

**224B. Seminar: Selected Topics in Chinese Linguistics (4)** Seminar, three hours. Critical reading and discussion of selected topics in Chinese functional linguistics (discourse and grammar, corpus linguistics, sociolinguistics, language change). May be repeated for credit with consent of instructor. Letter grading.

**226A. Seminar: Topics in Chinese Applied Linguistics (4)** Seminar, three hours. Critical reading and discussion of selected topics in Chinese applied linguistics (teaching Chinese as a second language, second language acquisition theories and practices). May be repeated for credit with consent of instructor. S/U or letter grading.

**230A. Seminar: Selected Topics in Modern Chinese Literature (4)** Seminar, three hours. Selected readings in 20th-century Chinese literature, emphasizing fiction. Discussion of individual research projects. May be repeated for credit. In Progress grading (credit to be given only on completion of course 230B).

**230B. Seminar: Selected Topics in Modern Chinese Literature (4)** Seminar, three hours. Selected readings in 20th-century Chinese literature, emphasizing fiction. Discussion of individual research projects. May be repeated for credit. Letter grading.

**C237. How to Read Chinese Poetry (4)** Lecture, two and one half hours; discussion, one hour. Preparation: one year of literary Chinese. From earliest vestiges of Chinese poetry more than two thousand years ago, to doors of



contemporary Chinese homes, and to San Francisco's Angel Island in late 19th century, few students of China (or pre-modern East Asia) go far without suddenly encountering pervasive presence of Chinese poetry (shi). Examination of why poetry, roles poetry plays in Chinese culture, and how to read it. Basic beginning in learning how to read Chinese classical poetry. Study is topical and accumulative, designed to have effect of building blocks and progressive overlays. Introduction to language, forms, and history of shi poetry. Study of smallest integral unit of Chinese lyric poetry, individual words and their selection; formal elements and rhetorical features; modes of perception and how it governs lyric description, narration, and argument. Consideration of presuppositions of what poetry is and how it is to be read. Concurrently scheduled with course C137. S/U or letter grading.

**C238. Travel Writing in Premodern China (4)** Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Exploration of travel writing in China, with focus on English translations of works by native writers and by foreign visitors through centuries. Concurrently scheduled with course C138. Letter grading.

**C240. Introduction to Chinese Linguistics (4)** Lecture, three hours; discussion, one hour. Recommended preparation: one to two years of college-level Chinese. Introduction to Chinese sound system, writing system and its reform, regional differences, major structural features, language in society and in cultural practices. Concurrently scheduled with course C120. Letter grading.

**241A. Heaven, Earth, and Monarchy in Ancient China (4)** Seminar, three hours. Preparation: working knowledge of classical Chinese. Close reading of chapters from Han dynasty collection of writings on forms of music, social interaction, education, marriage, and mourning in Zhou royal court, with discussion of topics in recent cultural semiology and anthropology. In Progress grading (credit to be given only on completion of course 241B).

**241B. Heaven, Earth, and Monarchy in Ancient China (4)** Seminar, three hours. Preparation: working knowledge of classical Chinese. Close reading of chapters from Han dynasty collection of writings on forms of music, social interaction, education, marriage, and mourning in Zhou royal court, with discussion of topics in recent cultural semiology and anthropology. Letter grading.

**242A. Chinese Classics and Exegetical Traditions (4)** Seminar, three hours. Recommended preparation: command of literary Chinese. Reading and discussions of selections from one traditional Chinese classic (Confucian Five Classics, others), with introduction to exegetical history, secondary scholarship, and research methodology. Topics vary from year to year. May be repeated for credit. In Progress grading (credit to be given only on completion of course 242B).

**242B. Chinese Classics and Exegetical Traditions (4)** Seminar, three hours. Recommended preparation: command of literary Chinese. Reading and discussions of selections from one traditional Chinese classic (Confucian Five Classics, others), with introduction to exegetical history, secondary scholarship, and research methodology. Topics vary from year to year. May be repeated for credit. Letter grading.

**243. Translation Workshop: Premodern Chinese Texts (2)** Seminar, two hours. Translation, grammatical analysis, and discussion of selections from pre-modern Chinese texts. S/U grading.

**C244. Translation Workshop: Modern Chinese Texts (4)** Lecture, three hours; discussion, one hour. Preparation: bilingual competency in Chinese and English. Workshop on Chinese-English literary translation, designed to hone and improve translation skills. Focus on close readings and analysis of original texts against published English translations and actual translation work. May include interpretation segment, designed to improve interpretation skills. Concurrently scheduled with course C144. S/U or letter grading.

**245A. Seminar: Traditional Chinese Narrative and Drama (4)** Seminar, three hours. Exploration of Chinese drama and theater culture from 13th century to early 20th century. Selected topics on dramatic literature and theater culture in relation to print publishing, popular culture, and political and social changes of late imperial China. Students propose an independent research project on completion of course 245A and develop it into a research paper on completion of 245B. In Progress grading (credit to be given only on completion of course 245B).

**245B. Seminar: Traditional Chinese Narrative and Drama (4)** Seminar, three hours. Exploration of Chinese drama and theater culture from 13th century to early 20th century. Selected topics on dramatic literature and theater culture in relation to print publishing, popular culture, and political and social changes of late imperial China. Students propose an independent research project on completion of course 245A and develop it into a research paper on completion of 245B. Letter grading.

**C250A. Lyrical Traditions (4)** Lecture, three hours; discussion, one hour. Readings of poetic and critical writings of traditional China, with emphasis on development of subjectivity and modes of address. Concurrently scheduled with course C150A. Graduate students required to read primary materials in original Chinese. S/U or letter grading.

**C250B. Chinese Literature in Translation: Traditional Narrative and Fiction (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Examination of formation and development of Chinese narrative traditions from Tang to mid-Qing periods (7th-18th centuries). Readings from biographical writings, fiction, drama, legal cases, etc., with emphasis on different narrative conventions and their cultural assumptions and intersections. Exploration of important issues in context of imperial China, including order and chaos, self and other, desire and transcendence, gender norms and transgression, violence and justice. May be taken independently for credit. Concurrently scheduled with course C150B. Letter grading.

**256A. Chinese Literary Criticism (4)** Seminar, three hours. Issues in production and interpretation of literary works, as formulated by Chinese critics from classical age onward. Letter grading.

**256B. Chinese Literary Criticism (4)** Seminar, three hours. Issues in production and interpretation of literary works, as formulated by Chinese critics from classical age onward. Letter grading.

**C257. Variable Topics in Culture and Society in Taiwan (4)** Lecture, three hours; discussion, one hour. Designed for graduate students. Knowledge of Chinese not required. Examination of relationship between culture (art, literature, film) and society in Taiwan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C156. Letter grading.

**C260. Chinese Buddhism (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Concurrently scheduled with course CM160. Letter grading.

**265A. Seminar: Chinese Buddhist Texts (4)** Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 265B).

**265B. Seminar: Chinese Buddhist Texts (4)** Seminar, three hours. May be repeated for credit with consent of instructor. Letter grading.

**C275. Introduction to Chinese Thought (4)** Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 BCE), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Concurrently scheduled with course C175. Letter grading.

**285A. Seminar: Readings in Chinese Religions (4)** Seminar, three hours. Preparation: reading knowledge of classical Chinese. Selected readings from religious traditions of China, with introduction to different disciplinary approaches, secondary scholarship, and research methodology. Topics rotate among chronological periods and major religious traditions. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 285B).

**285B. Seminar: Readings in Chinese Religions (4)** Seminar, three hours. Preparation: reading knowledge of classical Chinese. Selected readings from religious traditions of China, with introduction to different disciplinary approaches, secondary scholarship, and research methodology. Topics rotate among chronological periods and major religious traditions. May be repeated for credit with consent of instructor. Letter grading.

**290A. Seminar: Selected Topics in Chinese Archaeology (4)** Seminar, three hours. Requisite: course 186. Examination of key issues and debates in Chinese archaeology, with emphasis on emergence of early states and dynastic regimes, creation of early kingship and cosmology, formation of classical tradition, development of historical landscapes, and interactions between archaeological and textual traditions. May be repeated for credit. In Progress grading (credit to be given only on completion of course 290B).

**290B. Seminar: Selected Topics in Chinese Archaeology (4)** Seminar, three hours. Requisite: course 186. Examination of key issues and debates in Chinese archaeology, with emphasis on emergence of early states and dynastic regimes, creation of early kingship and cosmology, formation of classical tradition, development of historical landscapes, and interactions between archaeological and textual traditions. May be repeated for credit. Letter grading.

**295A. Seminar: Selected Topics in Chinese Cultural History (4)** Seminar, three hours. Discussion and research on major problems related to Chinese culture, such as beginnings of Chinese civilization and Chinese dynastic history. Other

topics include cultural developments of ancient and medieval China. May be repeated for credit. In Progress grading (credit to be given only on completion of course 295B).

**295B. Seminar: Selected Topics in Chinese Cultural History (4)** Seminar, three hours. Discussion and research on major problems related to Chinese culture, such as beginnings of Chinese civilization and Chinese dynastic history. Other topics include cultural developments of ancient and medieval China. May be repeated for credit. Letter grading.

**297A. Seminar: Research Topics in Premodern China (4)** Seminar, three hours. Selected topics in premodern Chinese literature, history, or religion, with emphasis on textual readings and independent research. S/U or letter grading.

**297B. Seminar: Research Topics in Modern Chinese and Sinophone Culture (4)** Seminar, three hours. Selected topics in modern Chinese and Sinophone culture, with major emphasis on independent research. S/U or letter grading.

## Filipino Courses

### Lower Division

**1. Introductory Filipino (5)** Lecture, two hours; discussion, three hours. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**2. Introductory Filipino (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3. Introductory Filipino (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3R. Introductory Filipino Reading and Writing (5)** Lecture, five hours. Recommended preparation: speaking and listening skills in Filipino. Training in reading and writing skills at elementary level, equivalent to completion of one year of Filipino. P/NP or letter grading.

**4. Intermediate Filipino (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**5. Intermediate Filipino (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**6. Intermediate Filipino (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**8. Elementary Filipino: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1, 2, and 3. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good

academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100A. Advanced Filipino: Reading and Writing (4)** Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Filipino/Tagalog placement test. Designed to move students with intermediate level of proficiency toward greater proficiency and fluency in reading, writing, speaking, and listening in Filipino language. Coverage of skills in effective use of language: description, narration, exposition, and argumentation. How to analyze different elements of writing and reading of pieces from several genres of contemporary Filipino writing. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Filipino (2)** Tutorial, two hours. Requisite: course 6 or Filipino/Tagalog placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Filipino. May be repeated for credit. P/NP or letter grading.

**130A. Filipino Short Story (4)** Lecture, three hours. Enforced requisite: course 6 or Filipino/Tagalog placement test. General background knowledge on how Filipino writers view themselves and society, historically and diachronically. Sample of short stories written in Filipino/Tagalog language with some written in English for purposes of contrasting rhetoric, themes, and sensibilities. P/NP or letter grading.

**152. Survey of Philippine Literature (4)** Lecture, three hours. Enforced requisite: course 3. Introduction to study of Philippine literature from pre-Hispanic to contemporary times. Readings of poetry, short stories, plays, novels, and historical survey to gain broad perspective of Philippine literature and understanding of literary development in Philippines. Study of effect of colonization on Filipino indigenous culture. P/NP or letter grading.

**155. Topics in Filipino Cinema and Literature (4)** Lecture, three hours; discussion, one hour. Knowledge of Filipino not required. Critical analysis of language and culture, history, and sociopolitical issues as represented in Filipino films and/or literature. May be repeated once for credit. P/NP or letter grading.

**170. People, Society, and Culture of Philippines (4)** Lecture, two hours; discussion, one hour. In-depth examination of Philippines, from early history and colonial formation under both Spain and U.S. to struggle for independence, Martial Law period, profound socio-economic issues of post-Marcos republic, including extreme poverty and global economic phenomenon of overseas Filipino workers in 21st century. Readings and selected films/videos contextualize specific topics under discussion. General orientation to political history and social conditions of Philippines. Study of various social categories of Filipino in present day, as means of engaging with essential societal issues. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Hindi-Urdu Courses

### Lower Division

**1. Introductory Hindi-Urdu (5)** Lecture, two hours; discussion, three hours. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**2. Introductory Hindi-Urdu (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3. Introductory Hindi-Urdu (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3R. Elementary Hindi-Urdu Reading and Writing (5)** Lecture, five hours. Recommended preparation: speaking and listening skills in Hindi-Urdu. Training in reading and writing skills at elementary level, equivalent to completion of one year of Hindi. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Intermediate Hindi-Urdu (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**100B. Intermediate Hindi-Urdu (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 100A with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**100C. Intermediate Hindi-Urdu (4)** Lecture, two hours; discussion, three hours. Enforced requisite: course 100B with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Hindi-Urdu (2)** Tutorial, two hours. Requisite: course 6 or Hindi-Urdu placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Hindi-Urdu. May be repeated for credit. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Indonesian Courses

### Lower Division

**1. Introductory Indonesian (5)** Lecture, three hours; discussion, two hours. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

**2. Introductory Indonesian (5)** Lecture, three hours; discussion, two hours. Requisite: course 1 with grade of C or better. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

**3. Introductory Indonesian (5)** Lecture, three hours; discussion, two hours. Requisite: course 2 with grade of C or better. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

**4. Intermediate Indonesian (5)** Lecture, five hours. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

**5. Intermediate Indonesian (5)** Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

**6. Intermediate Indonesian (5)** Lecture, five hours. Enforced requisite: course 5. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100A. Advanced Indonesian (4)** Lecture, three hours. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Preparation for more advanced study of specialized academic subjects, including but not limited to social sciences and humanities. Students read authentic materials in Indonesian concerning various issues. P/NP or letter grading.

**100B. Advanced Indonesian (4)** Lecture, three hours. Requisite: course 100A with grade of C or better. Preparation for more advanced study of specialized academic subjects, including but not limited to social sciences and humanities. Students read authentic materials in Indonesian concerning various issues. P/NP or letter grading.

**100C. Advanced Indonesian (4)** Lecture, three hours. Requisite: course 100B with grade of C or better. Preparation for more advanced study of specialized academic subjects, including but not limited to social sciences and humanities. Students read authentic materials in Indonesian concerning various issues. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Indonesian (2)** Tutorial, two hours. Requisite: course 6 or Indonesian placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Indonesian. May be repeated for credit. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Japanese Courses

### Lower Division

**1. Elementary Modern Japanese (5)** CID#61;111208.

**1. Elementary Modern Japanese (5)** Lecture, three hours; discussion, two hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Introduction to modern Japanese with attention to conversation, grammar, and written forms. Conversation drill based on material covered in class. P/NP or letter grading.

**1A. Elementary Japanese for Kanji Native Students (5)** Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Introduction to modern Japanese with attention to conversation, grammar, and written forms for those with some Kanji knowledge. Conversation drill based on material covered in class. P/NP or letter grading.

**2. Elementary Modern Japanese (5)** Lecture, three hours; discussion, two hours. Enforced prerequisite: course 1 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

**2A. Elementary Japanese for Kanji Native Students (5)** Lecture, two hours; discussion, three hours. Prerequisite: course 1A or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Introduction to modern Japanese with attention to conversation, grammar, and written forms for those with some Kanji knowledge. Conversation drill based on material covered in class. P/NP or letter grading.

**3. Elementary Modern Japanese (5)** Lecture, three hours; discussion, two hours. Enforced prerequisite: course 2 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

**3A. Elementary Japanese for Kanji Native Students (5)** Lecture, two hours; discussion, three hours. Prerequisite: course 2A or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Introduction to modern Japanese with attention to conversation, grammar, and written forms for those with some Kanji knowledge. Conversation drill based on material covered in class. P/NP or letter grading.

**4. Intermediate Modern Japanese (5)** Lecture, three hours; discussion, one hour. Prerequisite: course 3 or 8 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, vocabulary building skills, language learning skills, and sociocultural knowledge. P/NP or letter grading.

**5. Intermediate Modern Japanese (5)** Lecture, three hours; discussion, one hour. Prerequisite: course 4 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

**6. Intermediate Modern Japanese (5)** Lecture, three hours; discussion, one hour. Prerequisite: course 5 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

**8. Elementary Japanese: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Japanese, including pronunciation, grammar, and Japanese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

**10. Intermediate Modern Japanese: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Enforced prerequisite: course 3 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever

source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Readings in modern Japanese, with emphasis on comprehension and structural analysis. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**50. Japanese Civilization (5)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Survey of development of Japanese culture and its relationship to Asiatic mainland. P/NP or letter grading.

**70. Images of Japan: Literature and Film (5)** Lecture, three hours; discussion, one hour. Knowledge of Japanese culture, literature, or language not required. Introduction to visual and textual images of Japan's literary heritage, including documentary and feature films based on Japan's literary classics. Letter grading.

**75. Anime (5)** Lecture, three hours; discussion, one hour. Discussion and analysis of seminal works of Japanese animation, or anime, created from 1980s to present. Engagement with works in variety of styles, and that deal with broad range of themes. Reading and discussion of recent scholarship on anime produced by scholars working in diverse modes, from philosophical to anthropological. Letter grading.

**80. How Does It Move? Action and Moving Image in Modern Japan (5)** Lecture, four hours; discussion, one hour. How is action constituted on the screen? How has modern technological media informed and transformed our experience and understanding of action? Exploration of how our experience and conception of action is mediated by technological aesthetic media by tracing history of portrayal and experience of action both in media theory and practice. Emphasis on moving image practices surrounding production and reception of popular action film genres from Japan such as *chambara* or *samurai* film and *yakuza* film. Consideration also of their relationship to international film cultures and genres (e.g. Hollywood Western, gangster film, Chinese martial arts cinema, and contemporary Hollywood blockbusters) in context of broader historical transformations in media practices and in modes of distribution and reception. Study of theoretical debates, institutional practices, and ethical and political questions that inform our inquiries into moving image as action, and into action as/through moving image. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100A. Advanced Modern Japanese (4)** Lecture, three hours; discussion, one hour. Prerequisite: course 6 or 10 with grade of C or better or Japanese placement test. Course 100A with grade of C or better or Japanese placement test is enforced prerequisite to 100B; course 100B with grade of C or better or Japanese placement test is enforced prerequisite to 100C. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. P/NP or letter grading.

**100B. Advanced Modern Japanese (4)** Lecture, three hours; discussion, one hour. Prerequisite: course 100A with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society.

Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. P/NP or letter grading.

**100C. Advanced Modern Japanese (4)** Lecture, three hours; discussion, one hour. Requisite: course 100B with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. P/NP or letter grading.

**100R. Third-Year Advanced Reading in Modern Japanese (4)** Lecture, three hours. Enforced requisite: course 6 or 10 with grade of C or better or Japanese placement test. Not open to students with credit for course 100A or who have learned, from whatever source, enough Japanese to qualify for more advanced courses. May be taken concurrently with course 100A. Development of overall competency in reading advanced-level Japanese materials. Instruction in understanding grammar and practical expressions, as well as expansion of kanji and vocabulary to achieve higher ability in comprehension of written materials in Japanese. Translations from Japanese to English, as well as from English to Japanese. P/NP or letter grading.

**100S. Advanced Modern Japanese: Intensive (12)** Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 6 or 10 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 100A, 100B, and 100C. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. Offered in summer only. P/NP or letter grading.

**101A. Fourth-Year Japanese: Advanced Reading (4)** Lecture, three hours. Enforced requisite: course 100C or 100S with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. P/NP or letter grading.

**101B. Fourth-Year Japanese: Advanced Reading (4)** Lecture, three hours. Enforced requisite: course 100C or 100S with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. May be repeated for credit. P/NP or letter grading.

**101C. Fourth-Year Japanese: Advanced Reading (4)** Lecture, three hours. Enforced requisite: course 100C or 100S with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. May be repeated for credit. P/NP or letter grading.

**101S. Fourth-Year Japanese: Advanced Reading—Intensive (12)** Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 100C or 100S with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. Offered in summer only. P/NP or letter grading.

**103A. Fourth-Year Japanese: Advanced Speaking I (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S with grade of C or better. Development of listening and speaking abilities for students who need focused attention to these skills. Also suitable for graduate students who need to advance their public speaking ability. Not intended for those who are at higher level in these skill areas. P/NP or letter grading.

**103B. Fourth-Year Japanese: Advanced Speaking II (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S with grade of C or better. Development of listening and speaking abilities for students who need focused attention to these skills. Also suitable for graduate students who need to advance their public speaking ability. Not intended for those who are at higher level in these skill areas. P/NP or letter grading.

**103C. Fourth-Year Japanese: Advanced Speaking III (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S with grade of C or better. Development of listening and speaking abilities for students who need focused attention to these skills. Also suitable for graduate students who need to advance their public speaking ability. Not intended for those who are at higher level in these skill areas. P/NP or letter grading.

**104. Business Japanese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S with grade of C or better or Japanese placement test. Designed to improve skills in Japanese in context of business transactions. To be successful business person, one must be equipped with advanced specialized oral and written communication skills as well as high degree of cultural understanding. Oral and written business communication, social etiquette in business conduct, Japanese economic and business climate, business law and regulations, resources and environment, and business case studies. P/NP or letter grading.

**105A. Advanced Reading and Writing for Japanese-Heritage Speakers (4)** Lecture, three hours; discussion, one hour. Enforced preparation: Japanese placement test. Not open to students who have taken 100 series, 101 series, and/or 103 series courses or 104. Designed for advanced-level Japanese-heritage learners or nonheritage learners who are fluent in daily spoken Japanese. Emphasis on building vocabulary knowledge of Kanji, reading and writing, and honorific/humble style of Japanese. May be taken independently for credit. P/NP or letter grading.

**105B. Advanced Reading and Writing for Japanese-Heritage Speakers (4)** Lecture, three hours; discussion, one hour. Enforced preparation: Japanese placement test. Not open to students who have taken 100 series, 101 series, and/or 103 series courses or 104. Designed for advanced-level Japanese-heritage learners or nonheritage learners who are fluent in daily spoken Japanese. Emphasis on building vocabulary knowledge of Kanji, reading and writing, and honorific/humble style of Japanese. May be taken independently for credit. P/NP or letter grading.

**108FL. Special Studies: Readings in Japanese (2)** Seminar, two hours. Requisite: course 100C or 100S with grade of C or better or Japanese placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Japanese to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Japanese (2)** Tutorial, two hours. Requisite: course 100C or 100S with grade of C or better or Japanese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Japanese. May be repeated for credit. P/NP or letter grading.

**110A. Introduction to Classical Japanese: Basic Grammar (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100C or 100S or Japanese placement test. Introduction to fundamentals of classical Japanese. Grammar and reading of selected premodern texts. P/NP or letter grading.

**110B. Introduction to Classical Japanese: Reading Proficiency (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 110A. Grammar and readings of selected premodern texts. P/NP or letter grading.

**C112. Japanese Urban History and Culture (4)** Lecture, three hours. Knowledge of Japanese not required. Japanese urban history and culture, with special emphasis on cities of Nara, Kyoto, Edo/Tokyo, and Nagasaki. Concurrently scheduled with course C212. P/NP or letter grading.

**120. Introduction to Japanese Linguistics (4)** (Same as Linguistics M116.) Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 8 or Japanese placement test. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics. Letter grading.

**CM122. Japanese Phonology and Morphology (4)** (Same as Linguistics M176A.) Lecture, three hours; discussion, one hour. Recommended preparation: Linguistics 20. Enforced requisite: course 3 or 8 or Japanese placement test. Survey of Japanese phonetics, phonology, and morphology. Concurrently scheduled with course C222. Letter grading.

**CM123. Structure of Japanese (4)** (Same as Linguistics M176B.) Lecture, three hours; discussion, one hour. Enforced requisite: course 4 or 10 or Japanese placement test. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Concurrently scheduled with course C223. Letter grading.

**124. Language and Culture of Ryukyu/Okinawa (4)** Seminar, three hours. Requisite: course 6 or 10 or Japanese placement test. Research seminar with reading, discussion, linguistic analysis, and development of culminating project. Letter grading.

**CM127. Contrastive Analysis of Japanese and Korean (4)** (Same as Korean CM127 and Linguistics M178.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM227. Letter grading.

**130A. Readings in Modern Japanese Literature (4)** Seminar, three hours. Enforced requisite: course 100C or 100S or Japanese placement test. Readings and discussion of works by modern Japanese writers. May be taken independently for credit. Letter grading.

**130B. Readings in Modern Japanese Literature (4)** Seminar, three hours. Enforced requisite: course 100C or 100S or Japanese placement test. Readings and discussion of works by modern Japanese writers. May be taken independently for credit. Letter grading.

**130C. Readings in Modern Japanese Literature (4)** Seminar, three hours. Enforced requisite: course 100C or 100S or Japanese placement test. Readings and discussion of works by modern Japanese writers. May be taken independently for credit. Letter grading.

**140A. Readings in Classical Japanese Literature: Heian (4)** Seminar, three hours. Enforced requisite: course 110A. Readings and discussion of works of classical Japanese literature. May be taken independently for credit. Letter grading.

**140B. Readings in Classical Japanese Literature: Medieval (4)** Seminar, three hours. Enforced requisite: course 110A. Readings and discussion of works of medieval Japanese literature. May be taken independently for credit. Letter grading.

**140C. Readings in Classical Japanese Literature: Edo (4)** Seminar, three hours. Enforced requisite: course 110A. Readings and discussion of works of early modern Japanese literature. May be taken independently for credit. Letter grading.

**C149. Introduction to Kambun and Other Literary Styles (4)** Lecture, three hours. Enforced requisite: course 110A. Introduction to Kambun, Japanese literary rendering of premodern Sino-Japanese, and Sorobun, epistolary style. Concurrently scheduled with course C249. Letter grading.

**C150. Topics in Japanese Literature and Philosophy (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Discussion of philosophical topics such as experience, identity, value, technology, in light of Japanese literary texts. Concurrently scheduled with course C250. Letter grading.

**151. Japanese Literature in Translation: Modern (4)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Japanese not required. Survey of Japanese literature from 16th century to post-World War II. P/NP or letter grading.

**154. Postwar Japanese Culture through Literature (4)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Japanese not required. Use of fiction and film to explore Japanese culture in postwar era in broad cross-disciplinary and cross-cultural context. P/NP or letter grading.

**155. Topics in Japanese Cinema (4)** Lecture, three hours; discussion, one hour; film viewing, two hours. Knowledge of Japanese not required. Critical and historical examination of Japanese cinema. P/NP or letter grading.

**156. Literature and Technology (4)** (Same as Comparative Literature M176.) Lecture, three hours. Knowledge of Japanese not required. Examination of representation of technology in 20th-century fiction. Discussion of impact of technology on shifting images of gender, subjectivity, and national identity. P/NP or letter grading.

**157. Classical Japanese Drama: Great Tradition (4)** Lecture, three hours. Knowledge of Japanese not required. Readings in major genres of Japanese theater and exploration of its influence on 20th-century drama and theater around world. Letter grading.

**C159. Variable Topics in Culture and Society in Japan (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Examination of relationship between culture (art, literature, film) and society in Japan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C259. P/NP or letter grading.

**CM160. Japanese Buddhism (4)** (Same as Religion M161B.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course C260. Letter grading.

**161. Religious Life in Modern Japan (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Religious transformations accompanying rapid industrialization, urbanization, militarism, and defeat in Pacific War, including analyses of Shinto mythology, secular positivism, Buddhist reform movements, new religions, and continuing role of traditional village/family religious rites. Letter grading.

**165. Introduction to Japanese Buddhist Texts (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 110A or Chinese 165 or Japanese placement test. Readings in premodern Buddhist texts written by Japanese in Sino-Japanese or Kambun and mixed Japanese/Chinese literary styles concerning textual commentaries, doctrinal treatises, hagiographies, temple histories, etc. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

**170. Japanese Tales of Supernatural (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Readings of fictional works that feature supernatural beings, including Shinto gods, Buddhas, bodhisattvas, Yin-yang diviners, ghosts, various types of demons, shape-shifting foxes and raccoon dogs, snakes, and dragons. Exploration of different treatments of supernatural themes from ancient to modern times, and of relationship between supernatural literature and expressions of fear, cruelty, violence, misogyny, desire, hope, compassion, and humor. Letter grading.

**C171. Topics in Japanese Studies (4)** Lecture, three hours. Enforced requisite: course 100C or Japanese placement test. Advanced course that explores Japanese culture through in-depth reading of Japanese-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. Concurrently scheduled with course C271. P/NP or letter grading.

**172. Fiction and Plays of Floating World (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 50. Examination of broad selection of popular fiction and theater from late 17th to early 19th century, with focus on theme of floating world (ukiyo) of entertainment, including pleasure quarters, theater district, and realm of fiction. Letter grading.

**174. Classical Japanese Poetry (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Examination of classical poetry of Nara and Heian periods, with focus on poetry anthology called *Man'yōshū* (Collection of Myriad Ages, 8th century) and on *Kokin Wakashū* (Collection of Ancient and Modern Japanese Poems, early 10th century). Letter grading.

**C182. Japanese Folklore (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course C282. Letter grading.

**187SL. Service Learning in Japanese Community (4)** Lecture, three hours; fieldwork, three hours minimum. Enforced requisite: course 6. Service learning in Japanese community. Examination of scholarly works on cultural and language factors between Japanese and American communities. Survey of intercultural communication and learning of strategies for resolving miscommunication difficulties arising from language barrier and cultural differences while using language in real interaction with native speakers of Japanese. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Classical Japan (4)** Seminar, three hours. Research seminar on selected topics in premodern Japanese literature and thought. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191B. Variable Topics Research Seminars: Modern Japan (4)** Seminar, three hours. Research seminar on selected topics on modern Japan. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191C. Variable Topics Research Seminars: Personalities in Japanese Civilization (4)** Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**197. Individual Studies in Japanese (4)** Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Japanese. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

## Graduate

**200. Japanese Studies Seminar (4)** Seminar, three hours. Selected topics on introduction to major bibliographical and methodological resources in field of Japanese studies. May be repeated for credit with topic change. Letter grading.

**201A. Introduction to Reading Japanese Academic Texts (4)** Lecture, three hours. Requisite: course 100A or 100R. Course 201A is requisite to 201B. Designed for graduate students. Introduction to modern Japanese-language academic texts, both prewar and postwar, with focus only on reading; students who need to improve other skills should take additional courses. S/U or letter grading.

**201B. Introduction to Reading Japanese Academic Texts (4)** Lecture, three hours. Requisite: course 201A. Designed for graduate students. Introduction to modern Japanese-language academic texts, both prewar and postwar, with focus only on reading; students who need to improve other skills should take additional courses. S/U or letter grading.

**210. Issues in Modern Japanese Literature (4)** Lecture, three hours. Introduction to issues in field of modern Japanese literature, with readings in primary and secondary sources. Topics vary. Letter grading.

**C212. Japanese Urban History and Culture (4)** Lecture, three hours. Knowledge of Japanese not required. Japanese urban history and culture, with special emphasis on cities of Nara, Kyoto, Edo/Tokyo, and Nagasaki. Concurrently scheduled with course C112. S/U or letter grading.

**C222. Japanese Phonology and Morphology (4)** Lecture, three hours; discussion, one hour. Recommended preparation: Linguistics 20. Enforced requisite: course 3 or 8 or Japanese placement test. Survey of Japanese phonetics, phonology, and morphology. Concurrently scheduled with course CM122. Letter grading.

**C223. Structure of Japanese (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 4 or 10 or Japanese placement test. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Concurrently scheduled with course CM123. Letter grading.

**224A. Seminar: Selected Topics in Japanese Discourse Linguistics (4)** Seminar, three hours. Requisite: course CM122. Critical reading and discussion of selected topics in Japanese discourse linguistics. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 224B).

**224B. Seminar: Selected Topics in Japanese Discourse Linguistics (4)** Seminar, three hours. Requisite: course CM122. Critical reading and discussion of selected topics in Japanese discourse linguistics. May be repeated for credit with consent of instructor. Letter grading.

**226. Survey of Functional Linguistics (4)** Lecture, four hours. Survey of recent empirical and theoretical research in several areas of functional linguistics, that has served as backbone for development of Japanese discourse linguistics. May be repeated for credit with consent of instructor. S/U or letter grading.

**CM227. Contrastive Analysis of Japanese and Korean (4)** (Same as Korean CM227.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM127. Letter grading.

**228. Fundamentals in Discourse Data Analysis (4)** Lecture, three hours. Designed to prepare students to conduct research in natural discourse data, both spoken and written, for linguistic analysis. Discussion of discourse taxonomy, data collection methodologies, data organization, analytical frameworks. Letter grading.

**235A. Seminar: Selected Topics in Modern Japanese Fiction (4)** Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 235B).

**235B. Seminar: Selected Topics in Modern Japanese Fiction (4)** Seminar, three hours. May be repeated for credit with consent of instructor. Letter grading.

**240A. Seminar: Selected Topics in Japanese Literature (4)** Seminar, three hours. May be repeated for credit. In Progress grading (credit to be given only on completion of course 240B).

**240B. Seminar: Selected Topics in Japanese Literature (4)** Seminar, three hours. May be repeated for credit. Letter grading.

**241A. Seminar: Japanese Classics (4)** Seminar, three hours. Prose and poetry from early times to 1868. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 241B).

**241B. Seminar: Japanese Classics (4)** Seminar, three hours. Prose and poetry from early times to 1868. May be repeated for credit with consent of instructor. Letter grading.

**243. Translation Workshop: Premodern Japanese Texts (2)** Seminar, two hours. Requisite: course 200. Translation, grammatical analysis, and discussion of selections from premodern Japanese texts. S/U grading.

**245A. Seminar: Medieval Japanese Literature (4)** Seminar, three hours. Preparation: one year of classical Japanese. Selected readings in travel poetry, travel diaries, and other genres of Japanese travel literature of Heian, Kamakura, Nambokucho, and Muromachi periods. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 245B).

**245B. Seminar: Medieval Japanese Literature (4)** Seminar, three hours. Preparation: one year of classical Japanese. Selected readings in travel poetry, travel diaries, and other genres of Japanese travel literature of Heian, Kamakura, Nambokucho, and Muromachi periods. May be repeated for credit with consent of instructor. Letter grading.

**C249. Introduction to Kambun and Other Literary Styles (4)** Lecture, three hours. Requisite: course 110A. Introduction to Kambun, Japanese literary rendering of premodern Sino-Japanese, and Sorobun, epistolary style. Concurrently scheduled with course C149. Letter grading.

**C250. Topics in Japanese Literature and Philosophy (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Discussion of philosophical topics such as experience, identity, value, technology, in light of Japanese literary texts. Concurrently scheduled with course C150. Letter grading.

**C259. Variable Topics in Culture and Society in Japan (4)** Lecture, three hours; discussion, one hour. Examination of relationship between culture (art, literature, film) and society in Japan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C159. S/U or letter grading.

**C260. Japanese Buddhism (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course CM160. Letter grading.

**265A. Seminar: Japanese Buddhist Texts (4)** Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 265B).

**265B. Seminar: Japanese Buddhist Texts (4)** Seminar, three hours. May be repeated for credit with consent of instructor. Letter grading.

**270A. Seminar: Japanese Ritual Arts (4)** Seminar, three hours. Reading knowledge of Japanese not required. Discussions and readings on ritual (performing) arts of Japan comprising music, dance, storytelling, viewing, purification, divination, disguise, mimicry, and competitive as well as acrobatic



arts, with special emphasis on religio-magical purposes and symbolic structure of these arts. In Progress grading (credit to be given only on completion of course 270B).

**270B. Seminar: Japanese Ritual Arts (4)** Seminar, three hours. Reading knowledge of Japanese not required. Discussions and readings on ritual (performing) arts of Japan comprising music, dance, storytelling, viewing, purification, divination, disguise, mimicry, and competitive as well as acrobatic arts, with special emphasis on religio-magical purposes and symbolic structure of these arts. Letter grading.

**C271. Topics in Japanese Studies (4)** Lecture, three hours. Requisite: course 100C or Japanese placement test. Advanced course that explores Japanese culture through in-depth reading of Japanese-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. Concurrently scheduled with course C171. S/U or letter grading.

**276. Reading Modern Bodies (4)** (Same as Comparative Literature M276.) Seminar, three hours. Designed for graduate students. Exploration of construction of human body through various modern technologies and discourses, including those of disease, diet, race, gender, and sexuality. Examination of texts from variety of locales, with particular emphasis on Japan. S/U or letter grading.

**C282. Japanese Folklore (4)** Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course C182. Letter grading.

**297A. Seminar: Premodern Japan (4)** Seminar, three hours. Selected topics on premodern Japan. Letter grading.

**297B. Seminar: Modern Japan (4)** Seminar, three hours. Selected topics on modern Japan. Letter grading.

## Korean Courses

### Lower Division

**1. Elementary Modern Korean (5)** Lecture, three hours; discussion, two hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Introduction to standard spoken Korean and Korean writing, with emphasis on conversation. P/NP or letter grading.

**1A. Elementary Korean for Korean-Heritage Speakers (5)** Lecture, three hours; discussion, one hour. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners who have very limited knowledge in Korean language or have had no formal instruction in it and to students with no Korean-heritage background who want more Korean speaking/listening exposure than available in course 1. Emphasis on spelling, basic grammar, reading, writing, and daily conversation. P/NP or letter grading.

**2. Elementary Modern Korean (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 1 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

**2A. Elementary Korean for Korean-Heritage Speakers (5)** Lecture, three hours; discussion, one hour. Enforced requisite: course 1A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students who are from Korean-speaking family background and have some limited knowledge of Korean and to students with no Korean-heritage background who want more Korean speaking/listening exposure than available in course 2. Emphasis on formal aspects of standard Korean (basic grammar, reading, daily conversation, polite forms, basic writing). P/NP or letter grading.

**3. Elementary Modern Korean (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 2 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

**3A. Elementary Korean for Korean-Heritage Speakers (5)** Lecture, three hours; discussion, one hour. Enforced requisite: course 2A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses.

Designed for students with no Korean-heritage background who want more Korean speaking/listening exposure than available in course 3. Continuation of course 2A. P/NP or letter grading.

**3R. Accelerated Modern Korean for Advanced Beginners (5)** Lecture, three hours; discussion, one hour. Enforced requisite: Korean placement test or department consent. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. For students who wish to complete one-year foreign language requirement at accelerated pace. P/NP or letter grading.

**4. Intermediate Modern Korean (5)** Lecture, three hours; discussion, one hour. Requisite: course 3 or 3A or 8 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 3. Conversation, composition, and readings with structural analysis in modern Korean. P/NP or letter grading.

**4A. Intermediate Korean for Korean Speakers (5)** Lecture, five hours. Enforced requisite: course 3A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students who seek training in written components of standard Korean (spelling, reading, writing, and grammar) at intermediate level. Continuation of course 3A. P/NP or letter grading.

**5. Intermediate Modern Korean (5)** Lecture, three hours; discussion, one hour. Enforced requisite: course 4 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

**5A. Intermediate Korean for Korean Speakers (5)** Lecture, five hours. Enforced requisite: course 4A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). P/NP or letter grading.

**6. Intermediate Modern Korean (5)** Lecture, three hours; discussion, one hour. Enforced requisite: course 5 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

**6A. Intermediate Korean for Korean Speakers (5)** Lecture, five hours. Enforced requisite: course 5A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). Continuation of course 5A. Completion of course 6A is equivalent to completion of course 6. P/NP or letter grading.

**8. Elementary Korean: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Korean, including pronunciation, grammar, and Korean characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

**10. Intermediate Modern Korean: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Recommended preparation: course 3, 3A, or 8, or Korean placement test, or courses equivalent to elementary-level Korean. Second-year Korean. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Conversation, composition, and readings with structural analysis in modern Korean. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**40. Korean Wave: Globalization of South Korean Popular Culture (5)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to Korean popular culture and its relationship to transnational social and political contexts. P/NP or letter grading.

**40W. Korean Wave: Globalization of South Korean Popular Culture (5)** Lecture, two and one half hours; discussion, one hour. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 50.

Knowledge of Korean not required. Introduction to Korean popular culture, with focus on representative global phenomenon of Korean Wave (Hallyu). Use of concepts that theorize transnational flows of culture and relationship between cultural and sociopolitical power as framework, with focus on different genres of media and their individual examples—from pop music, drama, film, and television. Analysis to understand each as example of larger movement of culture across national borders from contexts of production to contexts of reception. Satisfies Writing II requirement. Letter grading.

**50. History of Korean Civilization (5)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. General survey of development of Korean culture within context of political, social, and economic history. P/NP or letter grading.

**60. Introduction to Korean Religions (5)** (Same as Religion M60C.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. General survey of history of religions in Korea—Shamanism, Buddhism, Confucianism, Daoism, Christianity, Tonghak, and some new religions—with focus on religious doctrines, practices, Korean characteristics, and social impacts. P/NP or letter grading.

**70. Images of Korea (5)** Lecture, three hours; discussion, one hour. Knowledge of Korean culture, literature, or language not required. Introduction to visual and textual representations of Korea. Letter grading.

**75. Introduction to Korean Literature and Culture (5)** Lecture, three hours; discussion, one hour. Broad overview of cultural history of Korea, from pre-modern period into present. P/NP or letter grading.

**80. Introduction to Korean Cinema (5)** Lecture, three hours; discussion, one hour. Broad overview of Korean film history, from beginning of 20th century into present. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Advanced Modern Korean (4)** Lecture, three hours; discussion, one hour. Requisite: course 6, 6A, or 10 with grade of C or better or Korean placement test. Course 100A with grade of C or better or Korean placement test is enforced requisite to 100B; course 100B with grade of C or better or Korean placement test is enforced requisite to 100C. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of courses 6/6A. Readings of modern prose and poetry, with emphasis on grammar and Sino-Korean. P/NP (undergraduates), S/U (graduates), or letter grading.

**100B. Advanced Modern Korean (4)** Lecture, three hours; discussion, one hour. Requisite: course 100A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of courses 6/6A. Readings of modern prose and poetry, with emphasis on grammar and Sino-Korean. P/NP (undergraduates), S/U (graduates), or letter grading.

**100C. Advanced Modern Korean (4)** Lecture, three hours; discussion, one hour. Requisite: course 100B with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of courses 6/6A. Readings of modern prose and poetry, with emphasis on grammar and Sino-Korean. P/NP (undergraduates), S/U (graduates), or letter grading.

**101A. Advanced Readings in Modern Korean (4)** Lecture, three hours. Enforced requisite: course 100C or Korean placement test. Course 101A or Korean placement test is enforced requisite to 101B; course 101B or Korean placement test is enforced requisite to 101C. Advanced readings and discussion for students planning to do advanced coursework or research on Korea.

Topics selected from magazines, journals, and books related to humanities and social sciences. P/NP (undergraduates), S/U (graduates), or letter grading.

**101B. Advanced Readings in Modern Korean (4)** Lecture, three hours. Enforced requisite: course 101A or Korean placement test. Advanced readings and discussion for students planning to do advanced coursework or research on Korea. Topics selected from magazines, journals, and books related to humanities and social sciences. P/NP (undergraduates), S/U (graduates), or letter grading.

**101C. Advanced Readings in Modern Korean (4)** Lecture, three hours. Enforced requisite: course 101B or Korean placement test. Advanced readings and discussion for students planning to do advanced coursework or research on Korea. Topics selected from magazines, journals, and books related to humanities and social sciences. P/NP (undergraduates), S/U (graduates), or letter grading.

**101I. Advanced Readings in Modern Korean: Intensive (12)** Lecture, 15 hours. Enforced requisite: course 100C or Korean placement test. Intensive course equivalent to courses 101A, 101B, and 101C. Learning advanced Korean language with emphasis on pop culture and social issues of contemporary Korean society. Expansion of Korean literacy and cultural knowledge by examining Korean films/drama, newspapers, and other contemporary publications. Offered in summer only. P/NP or letter grading.

**102A. Advanced Korean Conversation (4)** Lecture, three hours. Requisite: course 6 or 6A or 10 or Korean placement test. Not open to students who attended elementary school in Korea for more than two years or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed to improve spoken proficiency. May be taken independently for credit. P/NP or letter grading.

**102B. Advanced Korean Conversation (4)** Lecture, three hours. Requisite: course 6 or 6A or 10 or Korean placement test. Not open to students who attended elementary school in Korea for more than two years or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed to improve spoken proficiency. May be taken independently for credit. P/NP or letter grading.

**102C. Advanced Korean Conversation (4)** Lecture, three hours. Requisite: course 6 or 6A or 10 or Korean placement test. Not open to students who attended elementary school in Korea for more than two years or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed to improve spoken proficiency. May be taken independently for credit. P/NP or letter grading.

**103A. Readings in Sino-Korean Characters (4)** Lecture, three hours; discussion, two hours. Requisite: course 100C or Korean placement test. Course 103A or Korean placement test is requisite to 103B; course 103B or Korean placement test is requisite to 103C. Sino-Korean vocabulary and characters necessary for advanced and superior level of knowledge in Korean. Sino-Korean characters are used differently from same Chinese characters used in contemporary China in terms of pronunciation, meaning, and word formation. Professional-level Korean speakers need to be able to read at least 1,800 Sino-Korean characters. Reinforcement of collocation patterns and semantic association of Sino-Korean vocabulary. P/NP or letter grading.

**103B. Readings in Sino-Korean Characters (4)** Lecture, three hours; discussion, two hours. Requisite: course 103A or Korean placement test. Sino-Korean vocabulary and characters necessary for advanced and superior level of knowledge in Korean. Sino-Korean characters are used differently from same Chinese characters used in contemporary China in terms of pronunciation, meaning, and word formation. Professional-level Korean speakers need to be able to read at least 1,800 Sino-Korean characters. Reinforcement of collocation patterns and semantic association of Sino-Korean vocabulary. P/NP or letter grading.

**103C. Readings in Sino-Korean Characters (4)** Lecture, three hours; discussion, two hours. Requisite: course 103B or Korean placement test. Sino-Korean vocabulary and characters necessary for advanced and superior level of knowledge in Korean. Sino-Korean characters are used differently from same Chinese characters used in contemporary China in terms of pronunciation, meaning, and word formation. Professional-level Korean speakers need to be able to read at least 1,800 Sino-Korean characters. Reinforcement of collocation patterns and semantic association of Sino-Korean vocabulary. P/NP or letter grading.

**104A. Korean Writing for Advanced Learners (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101C or Korean placement test. Emphasis on academic writing in Korean, including rhetorical conventions, argument construction and coherence, and development of prose style. Readings include representative examples of diverse genres selected from magazines, journals, and books. May be taken independently for credit. P/NP (undergraduates), S/U (graduates), or letter grading.

**104B. Korean Writing for Advanced Learners (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101C or Korean placement test. Emphasis on academic writing in Korean, including rhetorical conventions, argument construction and coherence, and development of prose style. Readings include representative examples of diverse genres selected from magazines, journals, and books. May be taken independently for credit. P/NP (undergraduates), S/U (graduates), or letter grading.

**104C. Korean Writing for Advanced Learners (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101C or Korean placement test. Emphasis on academic writing in Korean, including rhetorical conventions, argument construction and coherence, and development of prose style. Readings include representative examples of diverse genres selected from magazines, journals, and books. May be taken independently for credit. P/NP (undergraduates), S/U (graduates), or letter grading.

**C105A. Reading Korean Academic Texts (4)** Lecture, three hours. Enforced requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. May be taken independently for credit. Concurrently scheduled with course C205A. P/NP or letter grading.

**C105B. Reading Korean Academic Texts (4)** Lecture, three hours. Enforced requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. May be taken independently for credit. Concurrently scheduled with course C205B. P/NP or letter grading.

**C105C. Reading Korean Academic Texts (4)** Lecture, three hours. Enforced requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. May be taken independently for credit. Concurrently scheduled with course C205C. P/NP or letter grading.

**106A. Superior Korean (4)** Lecture, three hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, or 102C. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. May be taken independently for credit. P/NP or letter grading.

**106B. Superior Korean (4)** Lecture, three hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, or 102C. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. May be taken independently for credit. P/NP or letter grading.

**106C. Superior Korean (4)** Lecture, three hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, or 102C. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. May be taken independently for credit. P/NP or letter grading.

**106SL. Superior Korean with Service Learning (4)** Lecture, three hours; fieldwork, two hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, 102C, 106A, or 107SL. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. Opportunity for students to communicate in Korean in authentic contexts while providing useful service to community. P/NP or letter grading.

**107A. Professional/Academic Korean (4)** Lecture, three hours. Requisite: course 101C or Korean placement test. Course 107A or Korean placement test is requisite to 107B; course 107B or Korean placement test is requisite to 107C. May not be taken concurrently with course 102A, 102B, or 102C. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as variety of styles and forms pertinent to professional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Development of both interactive and noninteractive listening. Research projects to be assigned according to student interests. P/NP or letter grading.

**107B. Professional/Academic Korean (4)** Lecture, three hours. Requisite: course 107A or Korean placement test. May not be taken concurrently with course 102A, 102B, or 102C. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as variety of styles and forms pertinent to profes-

sional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Development of both interactive and noninteractive listening. Research projects to be assigned according to student interests. P/NP or letter grading.

**107C. Professional/Academic Korean (4)** Lecture, three hours. Requisite: course 107B or Korean placement test. May not be taken concurrently with course 102A, 102B, or 102C. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as variety of styles and forms pertinent to professional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Development of both interactive and noninteractive listening. Research projects to be assigned according to student interests. P/NP or letter grading.

**107SL. Professional/Academic Korean and Community-Based Learning (4)** Lecture, three hours; fieldwork, two hours. Requisite: course 101C or Korean placement test. May not be taken concurrently with course 102A, 102B, 102C, 106A, 106SL, or 107A. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as variety of styles and forms pertinent to professional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Research projects to be assigned according to student interests. Opportunity for students to communicate in Korean in authentic and professional contexts while providing useful service to community. P/NP or letter grading.

**108FL. Special Studies: Readings in Korean (2)** Seminar, two hours. Enforced requisite: course 100C or Korean placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Korean to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Korean (2)** Tutorial, two hours. Requisite: course 100C or Korean placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Korean. May be repeated for credit. P/NP or letter grading.

**CM120. Structure of Korean (4)** (Same as Linguistics M177.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Concurrently scheduled with course C220. Letter grading.

**124. Topics in Korean Language and Culture (4)** Lecture, three hours; discussion, one hour. Recommended preparation: one to two years of college-level Korean. Introduction of basic concepts in sociocultural linguistics, discourse analysis, and multimedia resources to analyze Korean language and culture. Study to increase understanding of variety of sociocultural variables of Korean language. Exploration of interrelationship among language, culture, and society by examining Korean popular media (e.g., film/television drama, talk shows, music videos, digital discourse, advertisement, etc.). P/NP or letter grading.

**CM127. Contrastive Analysis of Japanese and Korean (4)** (Same as Japanese CM127 and Linguistics M178.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM227. Letter grading.

**130A. Readings in Modern Korean Literature (4)** Lecture, three hours. Enforced requisites: course 100C or Korean placement test, English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Readings and discussion of major modern Korean literary texts. May be taken independently for credit. Letter grading.

**130B. Readings in Modern Korean Literature (4)** Lecture, three hours. Enforced requisites: course 100C or Korean placement test, English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Readings and discussion of major modern Korean literary texts. May be taken independently for credit. Letter grading.

**148A. Reading Modern Korean Academic Texts (4)** Lecture, three hours. Requisite: Korean 101C or Korean placement test. Designed to improve reading skills for students who have studied Korean to advanced level, and enhance their understanding of Korean culture and society. Covers Korean academic

texts (book chapters, journal articles, reviews, and primary sources) on various issues of modern Korean literature, history, philosophy, religions, economy, and politics. P/NP or letter grading.

**C149. Readings of Sino-Korean and Korean Sources of Modern Korea (4)**

Seminar, three hours. Recommended preparation: reading knowledge of Korean and basic classical Chinese. Readings and discussions of Sino-Korean and Korean texts published in modern Korean newspapers, magazines, and books from 1885 to 1970. Concurrently scheduled with course C249. Letter grading.

**C150. Korean Literature in Translation: Classical (4)** Lecture, three hours. Knowledge of Korean not required. Survey of premodern Korean literature from beginning to 19th century. Concurrently scheduled with course C250. P/NP or letter grading.

**C151. Korean Literature in Translation: Modern (4)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Korean not required. Survey of modern and contemporary Korean literature. Concurrently scheduled with course C251. P/NP or letter grading.

**C152. Environment and Literature in Korea (4)** Seminar, three hours. Exploration of creative ways of reading classical Korean literature through lens of environmental literary criticism. Conscious of the current environmental crisis, study hypothesizes that the natural environment would have been imagined, been represented, and functioned in different ways in a non-modern and non-Western world. Study approaches classical Korean literature as a gateway to different ways of thinking about the environment and as an arena where ideas on the environment can be challenged, debated, and revised. Exploration of topics and questions including reconceptualization of humans and nonhumans; historicization of the environment; literary and cultural representations of the environmental imagination. Reading of variety of texts written before 20th century in Korea, including supernatural stories, poetry on nature, travelogues, and political writings. Engages with a diverse range of aural, visual, and cinematic materials. Concurrently scheduled with course C252. P/NP or letter grading.

**153. Korea West Encounters (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Exploration of major cross-cultural encounters between Korea and West from late 16th to early 20th century and writings of leading historical figures. Letter grading.

**154. Contemporary Korean Culture through Literature and Film (4)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Korean not required. Use of fiction and film to explore contemporary Korean culture in cross-cultural context. P/NP or letter grading.

**155. Topics in Korean Cinema (4)** Lecture, one hour; discussion, one hour; film viewing, three hours. Knowledge of Korean not required. Historical and critical survey of Korean cinema, examining intersection between 20th-century Korean history, politics, and filmmaking. P/NP or letter grading.

**159. Variable Topics in Culture and Society in Korea (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of relationship between culture (art, literature, film) and society in Korea. Reading, audio and visual material, discussion, and development of culminating projects and/or writing assignments. May be repeated for credit with topic change. Letter grading.

**CM160. Korean Buddhism (4)** (Same as Religion M161C.) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Concurrently scheduled with course C260. Letter grading.

**165. Introduction to Korean Buddhist Texts (4)** Lecture, three hours; discussion, one hour. Recommended prerequisite: course 100A or Chinese 110C or Korean placement test. Introduction to reading premodern Korean Buddhist texts written in Sino-Korean and taken from indigenous doxographic materials and philosophical writings, Korean Buddhist apocryphal scriptures, native exegetical commentaries, and Son (Zen) texts. Coverage varies. Texts may be read in either Sino-Korean or literary Chinese. May be repeated with consent of instructor. Letter grading.

**172. Topics in Korean Christianity (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Historical development of Christianity in Korea, beliefs and practices, impact of Christianity on modern Korean culture and society. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

**175. Intellectual History of Premodern Korea (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. General survey of Korean thought from earliest records to 19th century, including shamanism, Taoism, Buddhism, Christianity, and neo-Confucianism. Korean traditions and those found in India, China, Japan, and West. P/NP or letter grading.

**176. Introduction to Korean Confucian Texts (4)** Lecture, three hours. Enforced prerequisite: course 100C or Chinese 110C or Korean placement test. Reading in premodern Koryo and Choson texts on politics, society, and culture. Coverage varies. Texts may be read in either Sino-Korean or literary Chinese. May be repeated with consent of instructor. P/NP or letter grading.

**C177. Intellectual History of Modern Korea (4)** (Formerly numbered 177.) Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Korean not required. Survey of Korean thought in late 19th and 20th centuries, including religious thought, political thought, feminism, nationalism, and economic thinking and practice. Concurrently scheduled with course C277. P/NP or letter grading.

**178. Introduction to Modern Korean Historiography (4)** Seminar, three hours. Enforced prerequisite: course 101A or C105A or Korean placement test. Introduction to major Korean language historiographical works on Korean history in modern period. Coverage varies. May be repeated with consent of instructor. P/NP or letter grading.

**179. Gender and Sexuality in Korean Literature (4)** Seminar, three hours. Examination of Korean literature from 15th through 19th centuries, focusing on topics related to gender and sexuality. By revising modern presumption of gender inequality in premodern and non-Western societies, examination of complex and dynamic cultural constructions of gender and sexuality in premodern Korean society through reading of major works of classical Korean literature. Exploration of questions dealing with how gender and sexuality intersected with other social distinctions in diverse dimensions such as distinctions between human and nonhuman, aristocrats and commoners, and heterosexuals and homosexuals. Readings include ghost stories, dream narratives, biographical and autobiographical writings, and scripts for oral performance, all in English translation. P/NP or letter grading.

**180A. History of Korea through 1259 (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of evolution of Korean culture and society within context of political and institutional industry. Consideration of both higher and popular culture. P/NP or letter grading.

**180B. History of Korea, 1260 through 1876 (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of evolution of Korean culture and society within context of political and institutional industry. Consideration of both higher and popular culture. P/NP or letter grading.

**180C. History of Korea since 1876 (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of evolution of Korean culture and society within context of political and institutional industry. Consideration of both higher and popular culture. P/NP or letter grading.

**181. Reading Korean Cultural Landscape (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to Korean culture from historical/geographical perspective. Examination of human cultural imprint on land in religious, linguistic, rural, and urban landscapes. Letter grading.

**182. 1894 Kabo Reforms: History at Crossroads of Civilizations (4)** Seminar, three hours. Knowledge of Korean not required. Examination of modernizing reforms adopted in Korea in 1894. Consideration of conflict among radical Westernizers who had studied in Japan and U.S., moderate reformers who followed Chinese model of adopting Western technology to defend Confucian order, and orthodox Confucians who strongly opposed any changes. Focus on historical and intellectual background in first half, with debates among students who assume roles in Deliberative Council that was responsible for designing reforms in second half. Letter grading.

**183. Korean Folklore (4)** Lecture, three hours; discussion, one hour. Survey of Korean folklore and its perspectives and methods—oral literature, performing folk arts, social folk custom, and material culture. P/NP or letter grading.

**184. Women in History: Korea (4)** Lecture, two and one half hours; discussion, one hour. Examination of Korean history from perspective of women. Because gender roles and identities are social constructs and thus vary over time and place, consideration of how concepts relating to gender have been continuously reconstructed. Examination of how premodern women's identities formed through continual negotiation by women and men with larger processes of political, social, and cultural changes, such as formation of centralized bureaucratic systems, rise of aristocratic social system, and propagation of, and challenges to, Confucian social norms. Examination of how after opening of Korea to West and its aftermath brought about changes in women's education, employment, social/legal status, especially in context of colonialism, war, democratization, and economic development. Covers current issues concerning gender in 21st-century Korea. P/NP or letter grading.

**184A. Women in History: Premodern Korea (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of premodern Korean history from perspective of women. Consideration of how gender roles and identities were socially (re)constructed over time, with focus on continual negotiation by women and men within larger processes of political, social, and cultural changes such as formation of centralized bureaucratic systems, rise of aristocratic social order, and propagation of Confucian social values. Letter grading.

**184B. Women in History: Modern Korea (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Examination of modern Korean history from perspective of women since mid-19th century. Consideration of how gender roles and identities were socially (re)constructed over time, with focus on continual negotiation by women and men within larger processes of political, social, and cultural transformations. Discussion of issues such as changes in women's education, employment, social/legal status, especially in context of colonialism, war, democratization, and economic development. P/NP or letter grading.

**185. Education and Society in Korea (4)** Lecture, three hours. Knowledge of Korean not required. Coverage of historical legacies and current realities of education in Korea. Topics include Confucian background, colonial education, role of education in rapid economic development, views on education as vehicle for social mobility, and problems related to excessive emphasis on education. P/NP or letter grading.

**186. Korea and Vietnam: Comparative Modern Histories (4)** (Same as Vietnamese M186.) Seminar, three hours. Comparative survey of intertwined and parallel histories of Korea and Vietnam, organized chronologically, but structured around key themes that serve as basis for comparison. Modern experiences of colonized Vietnam and Korea have many significant parallels, including imposition of colonial control, transition to modernized societies within context of colonialism, and shared experiences of World War II. Both were also divided after war between communist regimes in north and strongly anticommunist regimes in south. Each also experienced warfare after division and direct involvement of U.S. during height of cold war between 1950s and 1970s. P/NP or letter grading.

**187. Popular and Folk Religion in Korea (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to history, forms, and scholarship concerning folk religion in Korea. Exploration of forms of popular and folk religion in Korea, including shamanism, ancestor worship, and contemporary religions. Consideration of fortune-telling, geomancy, and spirit belief. P/NP (undergraduates), S/U (graduates), or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Premodern or Early Modern Korea (4)** Seminar, three hours. Research seminar on selected topics in premodern or early modern Korea. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191B. Variable Topics Research Seminars: Contemporary Korean History (4)** Seminar, three hours. Research seminar on selected topics in modern Korean history. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**197. Individual Studies in Korean (4)** Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Korean. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

## Graduate

**200. Bibliography and Methods of Research in Korean (4)** Lecture, three hours. Requisites: course 101C, Chinese 110C. Review of basic Western and modern Korean reference books, with concentration on Korean literature and

language, and survey of basic bibliographical material. In addition, introduction to most important primary sources in student's field of specialization. Letter grading.

**203. Variable Topics in Korean Culture (4)** Seminar, three hours. Advanced course that explores Korean culture through in-depth reading of Korean-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. May be repeated for credit. S/U or letter grading.

**C205A. Reading Korean Academic Texts (4)** Lecture, three hours. Requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. May be taken independently for credit. Concurrently scheduled with course C105A. S/U or letter grading.

**C205B. Reading Korean Academic Texts (4)** Lecture, three hours. Requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. May be taken independently for credit. Concurrently scheduled with course C105B. S/U or letter grading.

**C205C. Reading Korean Academic Texts (4)** Lecture, three hours. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. May be taken independently for credit. Concurrently scheduled with course C105C. S/U or letter grading.

**210. Thought and Society in Korea (4)** Readings/discussion, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Readings in Korean intellectual history and its social, political, and economic background from rise of neo-Confucianism in 14th century to 20th century. Letter grading.

**211. Thought and Society in Modern Korea (4)** Discussion, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Critical examination of list of books central to field of modern Korean history, including such topics as Korean capitalism and communism, intellectual history, social movements, and Korean War. Letter grading.

**212. 19th-Century Korea (4)** Seminar, three hours; discussion, one hour. Requisite: course 180B or 180C. Proseminar covering crucial period from coronation of Sunjo in 1800 to annexation of Korea by Japan in 1910, including major historical scholarship on political, diplomatic, social, economic, intellectual, and cultural history. Letter grading.

**215. Korean Literary History (4)** Lecture, three hours. Designed for graduate students. Critical history of development of traditional Korean literature, with emphasis on canon and ideology, literary systems, hierarchy of genres, rise of literary kinds and forms, periodization, and critical issues in literary history. One particular area of focus to be nationalist canon that governs literary studies in Korea and West. Letter grading.

**C220. Structure of Korean (4)** Lecture, three hours; discussion, two hours. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Concurrently scheduled with course CM120. Letter grading.

**224A. Seminar: Selected Topics in Korean Linguistics (4)** Seminar, three hours. Critical reading and discussion of selected topics in Korean functional linguistics (grammaticalization, discourse, pragmatics, sociolinguistics, syntax, morphology) and pedagogy. In Progress grading (credit to be given only on completion of course 224B).

**224B. Seminar: Selected Topics in Korean Linguistics (4)** Seminar, three hours. Critical reading and discussion of selected topics in Korean functional linguistics (grammaticalization, discourse, pragmatics, sociolinguistics, syntax, morphology) and pedagogy. Letter grading.

**225. Korean Corpus Linguistics and Language Pedagogy (4)** Seminar, three hours. Introduction to corpus-based discourse and grammatical analysis using Korean corpora and concordancing programs. Special emphasis on development of corpus-based activities for language teaching and curriculum design. S/U or letter grading.

**CM227. Contrastive Analysis of Japanese and Korean (4)** (Same as Japanese CM227.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Concurrently scheduled with course CM127. Letter grading.

**230A. Seminar: Literary Translation from Korean (4)** Seminar, three hours. Preparation: reading knowledge of Korean. In consultation with instructor, students select works to be translated. Devoted to skill of producing accurate and readable translations, with emphasis on problems and techniques unique to poetry and prose. At end of term, students expected to produce publishable translations. May be repeated once with consent of instructor. In Progress grading (credit to be given only on completion of course 230B).

**230B. Seminar: Literary Translation from Korean (4)** Seminar, three hours. Preparation: reading knowledge of Korean. In consultation with instructor, students select works to be translated. Devoted to skill of producing accurate and readable translations, with emphasis on problems and techniques unique to poetry and prose. At end of term, students expected to produce publishable translations. May be repeated once with consent of instructor. Letter grading.

**235A. Seminar: Topics in Modern Korean Literature (4)** Seminar, three hours. Preparation: at least five years of Korean. Recommended: reading knowledge of Chinese or Japanese. Limited to graduate students. Study of selected period, movement, theme, or author of 20th-century Korean literature, with critical review of secondary works in Western and Korean languages. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 235B).

**235B. Seminar: Topics in Modern Korean Literature (4)** Seminar, three hours. Preparation: at least five years of Korean. Recommended: reading knowledge of Chinese or Japanese. Limited to graduate students. Study of selected period, movement, theme, or author of 20th-century Korean literature, with critical review of secondary works in Western and Korean languages. May be repeated for credit with consent of instructor. Letter grading.

**240A. Seminar: Classical Korean Fiction (4)** Seminar, three hours. Preparation: reading knowledge of Korean. Formal and thematic study of tales of marvelous, romance, satirical stories, diaries, and p'ansori fiction. Status of fiction in society and culture, fiction as imaginative representation of writer's relationship to real conditions of existence. Latest Western theory of narratology applied in analysis. In Progress grading (credit to be given only on completion of course 240B).

**240B. Seminar: Classical Korean Fiction (4)** Seminar, three hours. Preparation: reading knowledge of Korean. Formal and thematic study of tales of marvelous, romance, satirical stories, diaries, and p'ansori fiction. Status of fiction in society and culture, fiction as imaginative representation of writer's relationship to real conditions of existence. Latest Western theory of narratology applied in analysis. Letter grading.

**243. Translation Workshop: Premodern Korean Texts (2)** Seminar, two hours. Requisite: course 200. Translation, grammatical analysis, and discussion of selections from premodern Korean texts. S/U grading.

**245A. Seminar: Classical Korean Poetry (4)** Seminar, three hours. Preparation: reading knowledge of Korean. Critical reading and analysis of classical Korean poetry, including discussion of literary and cultural contexts of poetic genres. Nature of codes, conventions that make meaning possible. Review of latest Korean scholarship. May be repeated once with consent of instructor. In Progress grading (credit to be given only on completion of course 245B).

**245B. Seminar: Classical Korean Poetry (4)** Seminar, three hours. Preparation: reading knowledge of Korean. Critical reading and analysis of classical Korean poetry, including discussion of literary and cultural contexts of poetic genres. Nature of codes, conventions that make meaning possible. Review of latest Korean scholarship. May be repeated once with consent of instructor. Letter grading.

**248. Reading Korean Scholarly Journals: Social and Cultural Change as Reflected in Academic Discourse (4)** Seminar, three hours. Recommended preparation: basic reading knowledge of Korean. Reading of recently published academic journal articles in Korean language. Coverage of rapidly changing multiple Korean identities and related issues in family, marriage, gender, urban poverty, and religious culture in context of globalization and neoliberalism. Special attention to minority groups. S/U or letter grading.

**C249. Readings of Sino-Korean and Korean Sources of Modern Korea (4)** Seminar, three hours. Recommended preparation: reading knowledge of Korean and basic classical Chinese. Readings and discussions of Sino-Korean and Korean texts published in modern Korean newspapers, magazines, and books from 1885 to 1970. Concurrently scheduled with course C149. Letter grading.

**C250. Korean Literature in Translation: Classical (4)** Lecture, three hours. Knowledge of Korean not required. Survey of premodern Korean literature from beginning to 19th century. Concurrently scheduled with course C150. S/U or letter grading.

**C251. Korean Literature in Translation: Modern (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Survey of modern and contemporary Korean literature. Concurrently scheduled with course C151. S/U or letter grading.

**C252. Environment and Literature in Korea (4)** Seminar, three hours. Exploration of creative ways of reading classical Korean literature through lens of environmental literary criticism. Conscious of the current environmental crisis, study hypothesizes that the natural environment would have been imagined, been represented, and functioned in different ways in a non-modern and non-Western world. Study approaches classical Korean literature as a gateway to different ways of thinking about the environment and as an arena where ideas on the environment can be challenged, debated, and revised. Exploration of topics and questions including reconceptualization of humans and nonhumans; historicization of the environment; literary and cultural representations of the environmental imagination. Reading of variety of texts written before 20th century in Korea, including supernatural stories, poetry on nature, travelogues, and political writings. Engages with a diverse range of aural, visual, and cinematic materials. Concurrently scheduled with course C152. S/U or letter grading.

**C260. Korean Buddhism (4)** Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Concurrently scheduled with course CM160. Letter grading.

**265A. Seminar: Korean Buddhist Texts (4)** Seminar, three hours. Selected topics in Korean Buddhist texts. Coverage varies. In Progress grading (credit to be given only on completion of course 265B).

**265B. Seminar: Korean Buddhist Texts (4)** Seminar, three hours. Selected topics in Korean Buddhist texts. Coverage varies. Letter grading.

**272. Seminar: Korean Christianity (4)** Seminar, three hours. Coverage of representative scholars' writings on history of Korean Christianity, with focus on Protestantism. Issues include politics, identities of Korean Christians and Western missionaries, church growth and decline, medical, educational, literary, and woman's work, and Christianity's encounters with Korean religions, and foreign missions. S/U or letter grading.

**274. Seminar: Readings in Korean Christianity (4)** Seminar, three hours. Reading of recent secondary sources of Christianity in Korea, covering doctoral dissertations, journal articles, book chapters, and books in English and Korean to help graduate students understand recent scholarship on diverse topics in Korean Christianity. Letter grading.

**C277. Intellectual History of Modern Korea (4)** Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Korean not required. Survey of Korean thought in late 19th and 20th centuries, including religious thought, political thought, feminism, nationalism, and economic thinking and practice. Concurrently scheduled with course C177. S/U or letter grading.

**295A. Seminar: Topics in Traditional Korean Cultural History (4)** Seminar, three hours. Preparation: reading knowledge of Korean or literary Chinese. Discussion and research on major topics in Korean cultural history, such as Confucianization of Korean society, Practical Learning movement of late Choson dynasty, or Korean reactions to West in Eastern learning and enlightenment movements of 19th century. May be repeated for credit. In Progress grading (credit to be given only on completion of course 295B).

**295B. Seminar: Topics in Traditional Korean Cultural History (4)** Seminar, three hours. Preparation: reading knowledge of Korean or literary Chinese. Discussion and research on major topics in Korean cultural history, such as Confucianization of Korean society, Practical Learning movement of late Choson dynasty, or Korean reactions to West in Eastern learning and enlightenment movements of 19th century. May be repeated for credit. Letter grading.

**296A. Seminar: Topics in Modern Korean Cultural History (4)** Seminar, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Graduate research seminar on selected topics in modern Korean history. In Progress grading (credit to be given only on completion of course 296B).

**296B. Seminar: Topics in Modern Korean Cultural History (4)** Seminar, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Graduate research seminar on selected topics in modern Korean history. Letter grading.

# South Asian Courses

## Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**60. Religion in Classical India: Introduction (5)** (Same as Religion M60D.) Lecture, three hours; discussion, one hour. Introduction to religions of classical India—Vedic, Brahmanical, Hindu, Jain, and Buddhist—paying equal attention to change and continuity, with emphasis on chronological development. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**110A. Elementary Sanskrit (4)** Lecture, three hours. Introduction to script and grammar, with reading exercises and attention to significance of Sanskrit for understanding of other Indo-European languages. P/NP or letter grading.

**110B. Intermediate Sanskrit (4)** Lecture, three hours. Requisite: course 110A. Advanced aspects of grammar and reading of literary texts. P/NP or letter grading.

**110C. Advanced Sanskrit (4)** Lecture, three hours. Requisite: course 110B. Reading of entire Bhagavadgita or comparable amount of other Sanskrit literature. P/NP or letter grading.

**115. Readings in Sanskrit (4)** Lecture, three hours. Requisite: course 110C. Extensive reading in such texts as best serve students' needs. May be repeated for credit with consent of instructor. P/NP (undergraduates), S/U (graduates), or letter grading.

**150. Classical Indian Literature in Translation (4)** Lecture, three hours. Knowledge of Asian languages not required. Survey of some landmarks of classical Indian literature from second millennium BCE into second millennium CE, including both poetry and prose, high art and more popular genres, and secular and religious texts, examined in their social and institutional contexts. P/NP or letter grading.

**155. Topics in South Asian Cinema and Literature (4)** Lecture, three hours. Knowledge of Hindi/Urdu not required. Critical analysis of language and culture in South Asian diaspora as represented in films and/or literature. May be repeated once for credit. P/NP or letter grading.

**CM160. Buddhism in India (4)** (Same as Religion M161D.) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptional sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Concurrently scheduled with course C260. Letter grading.

**170. Variable Topics in South Asian Linguistics, Languages, and Cultures (4)** Lecture, three hours. Knowledge of Hindi/Urdu may be required. Critical analysis of language and culture in South Asian linguistic area, exploring notions of India as linguistic area and as cultural area. May be repeated for credit. P/NP or letter grading.

**175. Introduction to Indic Philosophy (4)** Lecture, three hours. Survey of main trends in Indian philosophy from ancient to modern times. P/NP or letter grading.

**185. Women and Gender in Ancient India (4)** Lecture, three hours. Knowledge of Asian languages not required. Examination of position and function of women in ancient India, primarily through study of key religious and legal texts. Topics include women's life cycle, relation to social institutions, and challenges to these ideals, especially in narrative literature. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**M222A. Vedic (4)** (Same as Indo-European Studies M222A and Iranian M222A.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. May not be repeated for credit. S/U or letter grading.

**222B. Vedic (4)** (Same as Indo-European Studies M222B and Iranian M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. May be repeated for credit. S/U or letter grading.

**230. Selected Readings in Sanskrit Texts (4)** Lecture, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**234A. Introduction to Panini's Grammar (4)** Lecture, three hours. Requisite: course 110C. Reading of selected passages of text, with introduction to Panini's technique. S/U or letter grading.

**234B. Introduction to Panini's Grammar (4)** Lecture, three hours. Requisite: course 110C. Reading of selected passages of text, with introduction to Panini's technique. S/U or letter grading.

**236A. Pali (4)** Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110B. Grammatical studies and reading of texts. Comparative considerations. S/U or letter grading.

**236B. Prakrits (4)** Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110B. Grammatical studies and reading of texts. Comparative considerations. S/U or letter grading.

**243. Translation Workshop: Premodern Sanskrit, Pali, and/or Prakrit Texts (2)** Seminar, two hours. Requisite: course 110C. Translation, grammatical analysis, and discussion of selections from premodern Sanskrit, Pali, and/or Prakrit texts. S/U grading.

**C260. Buddhism in India (4)** Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptional sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Concurrently scheduled with course CM160. Letter grading.

# Southeast Asian Courses

## Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Visible Language: Study of Writing (5)** (Same as Asian M20, Indo-European Studies M20, Near Eastern Languages M20, and Slavic M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium BC. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of con-



ceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium BC and how it compares to other modern writing systems. P/NP or letter grading.

**50. Southeast Asian Societies and Cultures (5)** Lecture, three hours; discussion, one hour. General introduction to varied and diverse region of Southeast Asia. Designed to acquaint students with broad themes that characterize societies, cultures, and civilizations of this vitally important part of globe. Study of historical trajectories that have led eleven countries of region to present situations. Emphasis on examinations of these societies and important contemporary issues relating to geography, topography, politics, culture, literature, gender issues, religion, human rights, and environment. P/NP or letter grading.

**60. Religious Traditions in Southeast Asia (4)** (Same as Religion M60E.) Lecture, three hours. Introduction to historical development and contemporary practice of religions in Southeast Asia. Examination of indigenous religious beliefs and major textually based religions introduced to region, including Hinduism, Buddhism, Islam, and Christianity. P/NP or letter grading.

**70. Modern Southeast Asian Literature (5)** Lecture, three hours; discussion, one hour. Introduction to modern literatures of Southeast Asia. Designed to expose students to range of literatures, predominantly novels and short stories, that were written across this region in response to dramatic changes caused by colonialism and its aftermath. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Modern Literatures in Southeast Asia (4)** Lecture, three hours. Knowledge of Southeast Asian languages not required. Exploration of diversity of Southeast Asia in such areas as traditional culture, modernization, politics, and literature through modern literary texts. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**C120. Ghosts, Spirits, and Witches: Supernatural in Southeast Asia (4)** Lecture, two hours; discussion, one hour. From magical tattoos, tree spirits, and faith healing to angry ghosts and disemboweled flying vampires, exploration of fantastic supernatural world of Southeast Asia through folk tales, urban myths, published accounts, popular films, and other media. Study of wide variety of supernatural creatures and local specialists that populate imagination of this diverse region. Exploration also of unique regional concepts of power, morality, and justice that animate and frame Southeast Asian attitudes towards supernatural phenomena in modern world. Concurrently scheduled with course C220. P/NP or letter grading.

**130. Topics in Southeast Asian Literature (4)** Lecture, three hours. Requisite: one course from Comparative Literature 1A, 1B, 1C, 1D, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Knowledge of Southeast Asian languages not required. Advanced exploration of Southeast Asia through in-depth reading of texts from region. Topics include censorship, politics, language, and literature. P/NP or letter grading.

**135. Religion and Society in Southeast Asia (4)** Lecture, three hours; discussion, one hour. Critical issues related to major religious traditions in Southeast Asia, with emphasis on reading and reflecting on recent scholarship regarding complex interactions between religion, state, and society in contemporary Southeast Asia. P/NP or letter grading.

**C140. Zomia: Peoples, Societies, and Cultures of Upland Southeast Asia (4)** Lecture, three hours; discussion, one hour. Recommended requisite: prior course in Asian cultures or history. Multidisciplinary survey of peoples of upland Southeast Asia and critical issues affecting them. Topics include history, culture, human rights, ethnicity, religion, politics. Concurrently scheduled with course C240. P/NP or letter grading.

**C150. Indigenous Peoples of Southeast Asia (4)** Lecture, two hours; discussion, one hour. In Southeast Asia, indigeneity is multi-layered concept. Most of population is native, yet there are specific ethnic groups that are legally designated or otherwise recognized as indigenous peoples. Ideas about indigeneity also vary across time and space, among indigenous peoples themselves, in ways that do not always align with elements valorized in anthropological, political, or global advocacy contexts. Offers local/national and regional orientation to modern plight of indigenous peoples in Southeast Asia, but situation politically within wider, global discussions and debates about indigenous activism and advocacy, as well as global academic scholarship pertaining to indigenous peoples. Study of most pertinent issues relating to modern indigenous realities in Southeast Asia. Students gain foundation to engage in comparative discussion with regard to indigenous peoples in Americas and elsewhere. Concurrently scheduled with course C250. P/NP or letter grading.

**157. Gender Issues in Southeast Asia (4)** Seminar, three hours. Critical examination of gender issues in one or more Southeast Asian countries as they connect to social historical contexts nationally, regionally, or globally. May be repeated for credit. P/NP or letter grading.

**160. Majorities and Minorities in Southeast Asia (4)** Lecture, two hours; discussion, one hour. Focus on political, cultural, and historical relationships between majority ethnic groups and minorities in possibly most culturally, religiously, and ethnically diverse regions of world—Southeast Asia. Provides productive framework to discuss nature of Southeast Asia's extreme diversity, and resulting multicultural relationships, in comparative and historical context—both regionally and, to some extent, globally. Discussions and assignments around gaining appreciation of experiences and perspectives of region's many different types of minority peoples. Critical examination of majorityhood as lived experience and as factor that informs minority rights issues. Includes discussion of significant current events related to minority-majority relationships in Southeast Asia. P/NP or letter grading.

**170A. Topics in Southeast Asian Studies (4)** Lecture, three hours. Exploration of Southeast Asian culture through in-depth reading of texts and/or visual documents. Topics include literature, religion, folklore, cultural history, and society. P/NP or letter grading.

**170B. Topics in Southeast Asian Studies (4)** Lecture, three hours. Exploration of Southeast Asian culture through in-depth reading of texts and/or visual documents. Topics include literature, religion, folklore, cultural history, and society. P/NP or letter grading.

**170C. Topics in Southeast Asian Studies (4)** Lecture, three hours. Exploration of Southeast Asian culture through in-depth reading of texts and/or visual documents. Topics include literature, religion, folklore, cultural history, and society. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Southeast Asian (4)** Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized treatment of one language offered in program beyond introductory and intermediate courses currently offered. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see academic coordinator. P/NP or letter grading.

## Graduate

**205. Southeast Asian Culture and History (4)** Seminar, three hours. Designed to expose graduate students to study of Southeast Asia as region across multiple disciplines. Discussions led by instructor and guest faculty members about core elements of their discipline's engagement with Southeast Asia, as well as latest trends in theory and research in that area. Reading of classic texts, as well as research articles representing current state of field. S/U or letter grading.

**C220. Ghosts, Spirits, and Witches: Supernatural in Southeast Asia (4)** Lecture, two hours; discussion, one hour. From magical tattoos, tree spirits, and faith healing to angry ghosts and disemboweled flying vampires, exploration of fantastic supernatural world of Southeast Asia through folk tales, urban myths, published accounts, popular films, and other media. Study of wide variety of supernatural creatures and local specialists that populate imagination of this diverse region. Exploration also of unique regional concepts of power, morality, and justice that animate and frame Southeast Asian attitudes towards supernatural phenomena in modern world. Concurrently scheduled with course C120. S/U or letter grading.

**C240. Zomia: Peoples, Societies, and Cultures of Upland Southeast Asia (4)** Lecture, three hours; discussion, one hour. Recommended requisite: prior course in Asian cultures or history. Multidisciplinary survey of peoples of upland Southeast Asia and critical issues affecting them. Topics include history, culture, human rights, ethnicity, religion, politics. Concurrently scheduled with course C140. S/U or letter grading.

**C250. Indigenous Peoples of Southeast Asia (4)** Lecture, two hours; discussion, one hour. In Southeast Asia, indigeneity is multi-layered concept. Most of population is native, yet there are specific ethnic groups that are legally designated or otherwise recognized as indigenous peoples. Ideas about indigeneity also vary across time and space, among indigenous peoples themselves, in ways that do not always align with elements valorized in anthropological, political, or global advocacy contexts. Offers local/national and regional orientation to modern plight of indigenous peoples in Southeast Asia, but situation politically within wider, global discussions and debates about indigenous activism and advocacy, as well as global academic scholarship pertaining to indigenous peoples. Study of most pertinent issues relating to modern indigenous realities in Southeast Asia. Students gain foundation to engage in comparative discussion with regard to indigenous peoples in Americas and elsewhere. Concurrently scheduled with course C150. S/U or letter grading.

## Thai Courses

### Lower Division

**1. Introductory Thai (5)** Lecture, three hours; discussion, two hours. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**2. Introductory Thai (5)** Lecture, three hours; discussion, two hours. Requisite: course 1 with grade of C or better. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3. Introductory Thai (5)** Lecture, three hours; discussion, two hours. Requisite: course 2 with grade of C or better. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3R. Thai Scripts (5)** Lecture, five hours. Recommended preparation: speaking and listening skills in Thai and Thai placement test. Training in reading and writing at introductory level. Completion of course 3R is equivalent to completion of one year of college-level Thai. P/NP or letter grading.

**4. Intermediate Thai (5)** Lecture, five hours. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**5. Intermediate Thai (5)** Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**6. Intermediate Thai (5)** Lecture, five hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100A. Advanced Thai (4)** Lecture, three hours. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Reinforcement of basic grammar and vocabulary acquired at beginning and intermediate levels. Coverage of more advanced topics on various aspects of Thai society. Broadening of skills in conversation and composition. Reading of selected texts and authentic materials. P/NP or letter grading.

**100B. Advanced Thai (4)** Lecture, three hours. Requisite: course 100A with grade of C or better. Reinforcement of basic grammar and vocabulary acquired at beginning and intermediate levels. Coverage of more advanced topics on various aspects of Thai society. Broadening of skills in conversation and composition. Reading of selected texts and authentic materials. P/NP or letter grading.

**100C. Advanced Thai (4)** Lecture, three hours. Requisite: course 100B with grade of C or better. Reinforcement of basic grammar and vocabulary acquired at beginning and intermediate levels. Coverage of more advanced topics on various aspects of Thai society. Broadening of skills in conversation and composition. Reading of selected texts and authentic materials. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Thai (2)** Tutorial, two hours. Requisite: course 6 or Thai placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Thai. May be repeated for credit. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Vietnamese Courses

### Lower Division

**1. Introductory Vietnamese (5)** Lecture, two hours; discussion, three hours. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**1A. Introductory Vietnamese for Heritage Learners (5)** Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

**2. Introductory Vietnamese (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**2A. Introductory Vietnamese for Heritage Learners (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 1A with grade of C or better or Vietnamese placement test. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced

courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

**3. Introductory Vietnamese (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**3A. Introductory Vietnamese for Heritage Learners (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 2A with grade of C or better or Vietnamese placement test. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

**3R. Introductory Vietnamese Reading and Writing (5)** Lecture, five hours. Recommended preparation: speaking and listening skills in Vietnamese. Training in reading and writing skills at elementary level, equivalent to completion of one year of Vietnamese. P/NP or letter grading.

**4. Intermediate Vietnamese (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**5. Intermediate Vietnamese (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**6. Intermediate Vietnamese (5)** Lecture, two hours; discussion, three hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

**8. Elementary Vietnamese: IntensiveE. (15)** Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1, 2, and 3. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**40. War in Vietnamese Popular Culture (5)** Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Focus on popular culture produced and consumed by, or about, people in Vietnam and diasporas. Materials include theoretical and other scholarly texts, as well as literature, music, visual art, films, and comics. Reading of scholarly writings for argument, date, and methods, and learning to apply theoretical frameworks in readings and lectures to analysis of popular cultural productions. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Advanced Vietnamese (4)** Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Vietnamese placement test. Designed to strengthen and build on language skills previously acquired at beginning and

intermediate levels. Content-based readings and discussion, with various aspects of Vietnam, particularly its culture. Readings include both authentic original works and simplified texts. May be taken independently for credit. P/NP or letter grading.

**100B. Advanced Vietnamese (4)** Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Vietnamese placement test. Designed to strengthen and build on language skills previously acquired at beginning and intermediate levels. Content-based readings and discussion, with various aspects of Vietnam, particularly its culture. Readings include both authentic original works and simplified texts. Each course may be taken independently for credit. P/NP or letter grading.

**100C. Advanced Vietnamese (4)** Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Vietnamese placement test. Designed to strengthen and build on language skills previously acquired at beginning and intermediate levels. Content-based readings and discussion, with various aspects of Vietnam, particularly its culture. Readings include both authentic original works and simplified texts. May be taken independently for credit. P/NP or letter grading.

**109. Advanced Tutorial Instruction in Vietnamese (2)** Tutorial, two hours. Requisite: course 6 or Vietnamese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Vietnamese. May be repeated for credit. P/NP or letter grading.

**CM155. Topics in Vietnamese Cinema and/or Literature (4)** (Same as Asian American Studies M173.) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. May be concurrently scheduled with course C255. P/NP or letter grading.

**155FL. Readings in Vietnamese (2)** Seminar, two hours. Requisite: course 3 or 3A. Enforced corequisite: course M155. Additional work in Vietnamese to augment work assigned in course M155, including reading, writing, and other exercises in Vietnamese. P/NP or letter grading.

**170. Variable Topics in Vietnamese Linguistics, Languages, and Cultures (4)** Lecture, three hours. Knowledge of Vietnamese may be required. Critical analysis of language and culture in Vietnam, exploring notion of Vietnam as culture area, surveying literary landscape through poetry and short stories. May be repeated for credit. P/NP or letter grading.

**180A. Vietnam: History and Civilization to 1858 (4)** Lecture, three hours; discussion, one hour. Recommended preparation: at least one Asian history course. Exploration of Vietnamese society and culture from origins to early 19th century, with emphasis on examination of ways in which interactions between indigenous and Chinese/Southeast Asian political and cultural forces helped shape religious, literary, and social traditions. P/NP or letter grading.

**180B. Vietnam: History and Civilization, 1858 to Present (4)** Lecture, three hours; discussion, one hour. Recommended preparation: at least one Asian history or civilization course. Exploration of Vietnamese history and civilization during colonial and postcolonial eras, with emphasis on profound changes that swept through Vietnamese society during period of extended political and military conflict. P/NP or letter grading.

**186. Korea and Vietnam: Comparative Modern Histories (4)** (Same as Korean M186.) Seminar, three hours. Comparative survey of intertwined and parallel histories of Korea and Vietnam, organized chronologically, but structured around key themes that serve as basis for comparison. Modern experiences of colonized Vietnam and Korea have many significant parallels, including imposition of colonial control, transition to modernized societies within context of colonialism, and shared experiences of World War II. Both were also divided after war between communist regimes in north and strongly anticommunist regimes in south. Each also experienced warfare after division and direct involvement of U.S. during height of cold war between 1950s and 1970s. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**C255. Topics in Vietnamese Cinema and/or Literature (4)** Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. May be concurrently scheduled with course C155. S/U or letter grading.

**297B. Topics in Contemporary Vietnamese Culture (4)** Seminar, three hours. Selected topics in Vietnamese contemporary culture, including diasporic culture, with emphasis on cultural production. Primary materials combined with theoretical readings. S/U or letter grading.

# Atmospheric and Oceanic Sciences

## Atmospheric and Oceanic Sciences Courses

### Lower Division

**1. Climate Change: From Puzzles to Policy (4)** Lecture, three hours; discussion, one hour. Overview of fundamentals of Earth's climate, including greenhouse effect, water and chemical cycles, outstanding features of atmospheric and ocean circulation, and feedback between different system components. Exciting and contentious scientific puzzles of climate system, including causes of ice ages, greenhouse warming, and el niño. Importance of climate science and prediction to society, with emphasis on science's role in identifying, qualifying, and solving environmental problems such as ozone hole and greenhouse warming. P/NP or letter grading.

**1L. Climate Change: From Puzzles to Policy—Laboratory (1)** Laboratory, one hour. Enforced corequisite: course 1. Investigations and demonstrations supporting material in course 1, including greenhouse effect, atmosphere and ocean circulation, past, present, and future climates, and role of science in climate change politics. P/NP or letter grading.

**2. Air Pollution (4)** Lecture, three hours; discussion, one hour. Causes and effects of high concentrations of pollution in atmosphere. Topics include nature and sources of gaseous and particulate pollutants, their transport, dispersion, modification, and removal, with emphasis on atmospheric processes on scales ranging from individual sources to global effects; interaction with biosphere and oceans; stratospheric pollution. P/NP or letter grading.

**2L. Air Pollution Laboratory (1)** Laboratory, one hour. Enforced corequisite: course 2. Investigations and demonstrations supporting material in course 2, including box model simulation, dose responses, air parcel motion and pollution dispersion, daily and seasonal variation of smog pollutants, and smog transport. P/NP or letter grading.

**3. Meteorology and Extreme Weather (4)** Lecture, three hours; discussion, one hour. Nature and causes of weather phenomena, including atmospheric global circulation, clouds and storms, lightning and precipitation, fronts and cyclones, and tornadoes and hurricanes. P/NP or letter grading.

**3L. Meteorology and Extreme Weather Laboratory (1)** Laboratory, one hour. Enforced corequisite: course 3. Investigations and data analysis supporting material in course 3, including interpretation of meteorological data, use of modern visualization tools to understand weather, and critical analysis of historical hurricane data. P/NP or letter grading.

**5. Climates of Other Worlds (4)** Lecture, three hours; discussion, one hour. Introduction to atmospheres of planets and their satellites in solar system using information obtained during recent planetary exploration program. Elementary description of origin and evolution of atmospheres on planets. Climates on planets, conditions necessary for evolution of life, and its resulting effect on planetary environment. P/NP or letter grading.

**7. Perils of Space: Introduction to Space Weather (4)** (Same as Earth, Planetary, and Space Sciences M7.) Lecture, three hours; discussion, one hour. Concepts of plasma physics. Dynamic sun, solar wind, and Earth's magnetosphere and ionosphere. Space storms and substorms and their impacts on astronauts, spacecraft, and surface power and communication grids. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**51. Fundamentals of Climate Science (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 3B or 32A, Physics 1A or 5A or 5B, with grades of C or better. Development of fundamental understanding of climate science. Topics include global energy balance, atmospheric radiation and greenhouse effect, surface and boundary layer dynamics, atmospheric and oceanic circulation, global hydrologic cycle, modes of climate sensitivity, climate modeling, and climate change. P/NP or letter grading.

**71. Introduction to Computing for Geoscientists (4)** (Same as Earth, Planetary, and Space Sciences M71.) Lecture, four hours; outside computing study, six to 10 hours. Introduction to writing programs, visualization of geoscience data, and comparison with models. P/NP or letter grading.

**88. Lower-Division Seminar (4)** Seminar, three hours. Variable topics; consult Schedule of Classes or department for topics to be offered in specific term. P/ NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Introduction to Undergraduate Research in Atmospheric and Oceanic Sciences (4)** Lecture, two hours; laboratory, two hours. Requisites: course M71 (or Program in Computing 10A); Life Sciences 30A and 30B, or Mathematics 3A and 3B, or 31A and 31B. Students gain basic ability to understand, conduct, and communicate scientific research in atmospheric and oceanic sciences. Univariate and bivariate statistical data analysis, scientific computer programming, basics of scientific process, finding and reading scientific literature, basic experimental techniques, Earth system data analysis and visualization, and communication of scientific findings in oral and written form. Skills taught in context of projects from atmospheric and oceanic sciences. P/ NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**M100. Earth and Its Environment (4)** (Same as Environment M111.) Lecture, three hours. Overview of Earth as system of distinct, yet intimately related, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Survey of history of Earth and of life on Earth, particularly in relation to evolution of physical world. Consideration of possibility of technological solutions to global environmental problems using knowledge gained during course. Letter grading.

**101. Fundamentals of Atmospheric Dynamics and Thermodynamics (5)** Lecture, four hours; discussion, one hour. Requisites: Mathematics 3B or 31B or Life Sciences 30B, Physics 1B or 5B or 5C or 6B. Introduction to thermodynamics (flows of heat, energy, and work) and dynamics (winds) of atmosphere. Topics covered include hydrostatic balance, first law of thermodynamics, dry and moist adiabatic processes, atmospheric stability, and fundamental equations of motion of atmosphere, with applications to geostrophic, gradient, and thermal winds. Letter grading.

**102. Climate Change and Climate Modeling (4)** Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 3C or 32A, Physics 1B or 6C, with grades of C or better. Global environmental issues in climate change due to human activities or natural climate variations. Quantitative introduction to new science of climate modeling to understand and predict these changes. Physical processes in climate system. Atmospheric and oceanic circulation. El Niño and year-to-year climate prediction. Greenhouse effect and global warming. P/NP or letter grading.

**103. Physical Oceanography (4)** Lecture, three hours; discussion, one hour. Requisite: Mathematics 3B or 31B. Introductory course for physical sciences, life sciences, or engineering majors interested in environmental issues. Observations of temperature, salinity, density, and currents. Methods. Wind-driven and geostrophic currents. California Current and Gulf Stream. Internal waves. Surface waves and tides. Air/sea interactions. Coastal upwelling. Biological/physical interactions. El Niño. Role of ocean in climate and global change. Santa Monica Bay field trip. Letter grading.

**104. Fundamentals of Air and Water Pollution (4)** Lecture, three hours; discussion, one hour. Requisite: Chemistry 14B or 20B. Chemistry and physics of air and water pollution, including photochemistry, acid rain, air pollution meteorology and dispersion, groundwater and surface water pollution, chemical cycling, air/water interface, global atmospheric change. Letter grading.

**105. Introduction to Chemical Oceanography (4)** (Same as Ecology and Evolutionary Biology M139.) Lecture, three hours; discussion, one hour. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Chemical composition of oceans and nature of physical, chemical, and biological processes governing this composition in

past and present. Cycles of major and minor oceanic constituents, with focus on those that are most important for life (i.e., carbon, nitrogen, phosphorus, silicon, and oxygen). Investigation of primary production, export production, remineralization, diagenesis, air-sea gas exchange processes. Letter grading.

**106. Applied Climatology: Principles of Climate Impact on Natural Environment (4)** (Same as Geography M118.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of knowledge and tools to solve complex problems in contemporary applied climatology, including current practices, influence of climate on environment, and human influence on changing climates. P/NP or letter grading.

**107. Biological Oceanography (4)** Lecture, three hours; discussion, one hour. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Review of how biological processes are intrinsically tied to physical and chemical processes in oceans. Examination of processes that control distribution, abundance, and production of marine organisms and their spatial and temporal variability. Letter grading.

**C110. Advanced Dynamic and Synoptic Meteorology (4)** Lecture, three and one half hours. Requisite: course 101. Weather map analysis, thermodynamic diagrams, satellite interpretation, severe weather forecasting, isentropic analysis, frontogenesis, quasi-geostrophic omega equation. Concurrently scheduled with course C227. P/NP or letter grading.

**C110L. Advanced Dynamic and Synoptic Meteorology Laboratory (2)** Laboratory, two hours. Comprehensive weather forecasting exercises and map discussions led by meteorologist. Concurrently scheduled with course C227L. P/ NP or letter grading.

**C111. Introduction to Machine Learning for Physical Sciences (4)** Lecture, 90 minutes; laboratory, 90 minutes. Designed for physical sciences students. Practical, hands-on introduction to seven of most popular algorithms of machine learning (ML). Students gain most practical skills to start working in industry or research immediately, using popular Python programming language, together with SciKitLearn ML library, and covering essential theory to understand what algorithms do. Focus on solving typical problems that arise in physical sciences. Covers algorithms in broad areas of ML, including supervised learning (regression and classification) and unsupervised learning (clustering and dimensionality reduction). Lectures and programming exercises. Concurrently scheduled with course C204. P/NP or letter grading.

**112. Climate Change Assessment (4)** Lecture, three hours; discussion, one hour. Requisite: one course from Life Sciences 30B, 40, Mathematics 3B, 31B, Statistics 10, 12, or 13. Recommended requisite: one course from 51, 101, 102, 103, 104, 105, M106, 107, Environment 175, or equivalent background for reading quantitative scientific literature in climate change. Projections of future anthropogenic climate change and understanding of natural climate variability depend on international climate model intercomparison projects, on large observing systems coordinating space and ground observations, and on multi-scientist climate assessments. Lectures, readings and projects with presentations address current issues in the scientific literature on assessment of climate change for students with prior background in the atmospheric, oceanic and environmental sciences. P/NP or letter grading.

**CM114A. Aquatic Geomicrobiology: Metabolisms (4)** (Formerly numbered CM114.) (Same as Earth, Planetary, and Space Sciences CM114A.) Lecture, three hours. Recommended requisite: course M105 or Earth, Planetary, and Space Sciences C107. Study of fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems and how these processes interact with environment. Metabolisms include photoautotrophic (anoxygenic and oxygenic photosynthesis), chemoheterotrophic (fermentation and respiration of organic matter), photoheterotrophic (organic matter degradation with light), and chemoautotrophic (iron, nitrogen, manganese, methane, and sulfur oxidation) pathways. Introduction of principals of bioenergetics (adenosine triphosphate production, Gibbs free energy, chemiosmosis, thermodynamic calculations) and biological isotope fractionation. Concurrently scheduled with course CM237A. P/NP or letter grading.

**CM114B. Aquatic Geomicrobiology: Environments (4)** (Same as Earth, Planetary, and Space Sciences CM114B.) Lecture, three hours. Recommended requisite: course CM114A. Broad overview of aquatic geomicrobiological processes in diverse environmental settings (e.g., sediments, microbial mats, water column, wetlands, cold seeps, hydrothermal vents, deep biosphere), and how these processes drive element cycling on Earth. Concurrently scheduled with course CM237B. P/NP or letter grading.

**C115. Mesometeorology (4)** Lecture, three hours. Requisite: course 101. Observations of phenomena with length scales ranging from 20 km to 2,000 km. Topics include polar lows, airmass thunderstorms, multicell storms, supercell tornadoes, gust fronts, downbursts, microbursts, and dry line. Discussions on design of field project. Concurrently scheduled with course C228. P/NP or letter grading.

**120. Introduction to Fluid Dynamics (4)** (Same as Earth, Planetary, and Space Sciences M140.) Lecture, three hours; discussion, one hour. Recommended: Physics 32. Fluid statics and thermodynamics. Kinematics. Conservation laws and equations of fluid motion. Circulation theorems and vorticity dynamics. Rotating frame. Irrotational flow. Letter grading.

**121. Climate Mitigation Solutions (4)** Lecture, three hours; discussion, one hour. Requisite: one course from course 1, 2, 3, 51, M100, 102, or 112. Critical survey of potential strategies to address climate change, including solutions in infrastructure, transportation, energy, waste, and agricultural sectors, as well as geoengineering. Exploration of roles of communication, equity, religion, social change, and education in mitigating climate change. P/NP or letter grading.

**123. Climate Adaptation Solutions (4)** Lecture, three hours; discussion, one hour. Recommended requisites: courses 1, 51, Environment 10. Development of fundamental understanding of climate change adaptation challenges facing humanity. Such challenges stem from changes in physical climate system, such as warming and increases in heat extremes, loss of snow and ice, sea level rise, increases in extreme precipitation, deepening drought, increases in wildfire, deteriorating air quality, changes in ocean circulation, and ocean acidification. Examination of all these challenges, as well as associated stresses on human and natural systems. Examination of these issues from local, regional, and global perspectives, emphasizing intersections with other deep sustainability challenges. P/NP or letter grading.

**130. California's Ocean (4)** Lecture, four hours. Recommended requisite: course 103 or M105. Circulation, biogeochemistry, biota, water quality, measurement techniques, computational modeling, conservation, and management for California's coastal ocean, including coastal measurement cruise and term project (paper and presentation). Letter grading.

**135. Ocean Change in the Anthropocene (4)** Lecture, 90 minutes; laboratory, 90 minutes. Requisites: courses 103, 105. Review of main impacts of human activities on ocean, from warming and acidification to overfishing, pollution, and exploitation of marine resources. Discussion of concepts of governance and sustainability. Introduction to global ocean datasets and IPCC-class model output. Student-led presentation to review significant papers from scientific literature. Letter grading.

**141. Introduction to Atmospheric Chemistry and Air Pollution (4)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 14B or 20B, Mathematics 3A or 31A, Physics 1B or 6B. Physical and chemical processes that determine composition of atmosphere and its implications for climate, ecosystems, and human welfare. Origin of atmosphere. Nitrogen, oxygen, carbon, sulfur, trace metal cycles. Climate and greenhouse effect. Atmospheric transport and turbulence. Stratospheric ozone. Oxidizing power of atmosphere. Regional air pollution: aerosols, smog, mercury, and acid rain. Letter grading.

**C144. Atmospheric Boundary Layer (4)** Lecture, three hours. Enforced requisite: course 101 with grade of B&plus; or better. Atmospheric boundary layer is lowest portion of atmosphere, representing interface between Earth's surface and atmosphere, is strongly affected by turbulence, and plays important role in exchange of heat, momentum, trace gases, and aerosols between Earth's surface and free troposphere. Investigation of properties of atmospheric boundary layer and processes that determine them. Concurrently scheduled with course C222. P/NP or letter grading.

**145. Atmospheric Physics: Radiation, Clouds, and Aerosols (4)** Lecture, three hours; discussion, one hour. Requisites: Physics 1A, 1B, and 1C, or 6A, 6B, and 6C. Theory and application of atmospheric radiation, aerosol, and cloud processes. Topics include radiative transport, cloud and rain formation, aerosol properties, impact of aerosol and clouds on climate. Letter grading.

**150. Atmospheric and Oceanic Sciences Laboratory (5)** Lecture, one hour; laboratory, six hours. Requisites: Mathematics 3B or 31B, Physics 1B and 1C (or 5B and 5C). Many of today's environmental problems, such as stratospheric ozone hole, current rise of greenhouse gas concentrations, and various severe weather phenomena, were first discovered and investigated using accurate observational techniques. Direct experimental observations remain crucial component in today's efforts to better understand weather, climate, and pollution of atmosphere and ocean. Introduction to experimental/observational approach in atmospheric and oceanic sciences. Students work in small groups to gain hands-on experience in setup, performance, analysis, and reporting of different experiments. Introduction to underlying principles of these experimental methods and basic data analysis tools. P/NP or letter grading.

**155. Introduction to Ecosystem-Atmosphere Interactions (4)** Lecture, three hours; discussion, one hour. Exchanges of energy, moisture, atmospheric trace gases, and momentum between terrestrial ecosystems and atmosphere. Interactions and feedbacks between physical environment and physi-

ological status of plants and soils. Topics include canopy structure and function, leaf energy balance, and carbon and water fluxes between plants, soils, and atmosphere. Letter grading.

**C160. Remote Sensing of Atmosphere and Oceans (4)** Lecture, three hours. Requisite: Physics 1C or 5B. Theory and techniques of remote sensing; atmospheric spectroscopy, scattering, and polarization; passive and active techniques; relevant satellite systems; inversion methods; remote sensing of clouds, aerosols, temperature, precipitation, and trace constituents; remote sensing of oceans and biosphere. Concurrently scheduled with course C240B. P/NP or letter grading.

**C170. Introduction to Solar System Plasmas (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1C. Introduction to basic plasma physical processes occurring in sun, solar wind, magnetospheres, and ionospheres of planets, using simple fluid (magnetohydrodynamic) models as well as individual particle (radiation belt phenomena) approach. Solar-planetary coupling processes, geomagnetic phenomena, aurora. Concurrently scheduled with course C205A. Letter grading.

**171. Advanced Computing in Geosciences (4)** (Same as Earth, Planetary, and Space Sciences M171.) Lecture, four hours. Requisites: course M71, Mathematics 3A, 3B, and 3C (or 31A and 31B). Misfit modeling and quantitative comparisons of acquired data sets and theory. Forward modeling from fundamental equations. Examples, experiments, and exercises from disciplines within geosciences. P/NP or letter grading.

**180. Numerical Methods in Atmospheric Sciences (4)** Lecture, three hours; discussion, one hour. Preparation: one course in programming (C/C&43;&43;, Fortran, MATLAB, or Python). Requisite: Mathematics 33B. Introduction to numerical methods employed in atmospheric and oceanic sciences: theory, application, programming, and visualization tools. Students build their own numerical model of atmospheric/oceanic circulation. Term project. Letter grading.

**181. Analysis and Prediction of Weather Systems (3)** Laboratory, three hours. Requisite: course C110. Limited to junior/senior Atmospheric and Oceanic Sciences majors. Introduction to collection, display, and application of weather observations and numerical forecasts used by operational meteorologists. Includes daily weather map discussions, and analysis and interpretation of numerical weather prediction model outputs. Letter grading.

**C182. Data Analysis in Atmospheric and Oceanic Sciences (4)** Lecture, three hours; laboratory, one hour. Enforced requisite: one course from 101 through M105. Recommended: one probability course. Overview of data analytic methods in common use in atmospheric and oceanic research. Linear models, principal component analysis (empirical orthogonal function), time-series analysis, and clustering methods. Model validation and evaluation, significance tests, error analysis, bias detection. Emphasis on practical applications, with specific examples from atmospheric and oceanic sciences. Concurrently scheduled with course C260. P/NP or letter grading.

**186. Operational Meteorology (2)** Laboratory, six hours. Requisite: course C110. Limited to junior/senior Atmospheric, Oceanic, and Environmental Sciences majors. Daily contact with weather data and forecasting, satellite and radar data. Introduction to weather forecasting for aviation, air pollution, marine weather, fire weather, and public use. Includes daily weather map discussions and visits to observing, radiosonde, and radar installations. Letter grading.

**187. Careers in Earth System, Environment, and Space Sciences (1)** (Same as Earth, Planetary, and Space Sciences M187 and Environment M187.) Seminar, one hour. Examination of central role of science in understanding and addressing grand challenges in climate, earth and environment, and space exploration through seminars given by scientists, engineers, managers, and entrepreneurs from national laboratories and industry. Includes tour of National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). Students engage speakers on science, career preparation, opportunities for undergraduate internships, and building fulfilling careers. P/NP grading.

**188. Special Topics in Atmospheric and Oceanic Sciences (4)** Lecture, three hours; discussion, one hour. Departmentally-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Atmospheric and Oceanic Sciences (2)** Seminar, two hours. Preparation: basic knowledge of meteorology (equivalent to course 3) and lower-division calculus, chemistry, and physics; course 101 strongly recommended. Limited to departmental majors and minors. Survey of current research projects presented by faculty members and research staff in seminar and/or panel discussion format. May be repeated for credit. P/NP grading.

**192A. Introduction to Collaborative Learning Theory and Practice (1)** (Same as Chemistry M192E, Computer Science M192A, Life Sciences M192A, Mathematics M192A, and Physics M192S.) Seminar, one hour. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. Letter grading.

**192B. Methods and Application of Collaborative Learning Theory in Atmospheric and Oceanic Sciences. (2 to 4)** Seminar, two hours; clinic, four hours. Requisites: Life Sciences M192A (may be taken concurrently) and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. Letter grading.

**197. Individual Studies in Atmospheric and Oceanic Sciences. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Atmospheric and Oceanic Sciences. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors and required for Mathematics/Atmospheric and Oceanic Sciences majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Introduction to Atmospheric and Oceanic Fluid (4)** Lecture, three hours; discussion, one hour. Recommended requisite: Physics 131. Thermodynamics of two component (moist/salty) fluids. Thermodynamic diagrams and stability. Saturation and moist processes. Hydrostatics. Equations of fluid motion in rotating coordinate systems. Scales of motion and dominant balances: geostrophic, gradient, and thermal wind. Circulation and vorticity. Boundary layers and turbulence. Elementary waves. S/U or letter grading.

**200B. Introduction to Dynamics of Earth System (4)** Lecture, three hours. Overview of processes that determine dynamics of Earth system and contribute to its change including global and meridional energy balance; radiative-convective equilibrium; surface processes; planetary boundary layers; global atmospheric circulation; hydrological cycle; global ocean circulation; El Niño—Southern Oscillation and other climate variability modes; paleoclimate; climate sensitivity; climate variability and change; Earth's carbon cycle (atmosphere, ocean, land), and space physics. S/U or letter grading.

**200C. Introduction to Atmospheric and Oceanic Radiation, Physics, and Chemistry (4)** Lecture, three hours; discussion, one hour. Propagation and budget of radiation in atmosphere and ocean; absorption and scattering of sunlight; emission and absorption of infrared radiation; radiative transfer equation; remote sensing; characteristics of particles in atmosphere and ocean; principles of particle and cloud drop formation; condensation and coagulation; impact of aerosol on climate; chemistry of atmosphere and ocean; ozone hole; principles of air and water pollution; impact of chemistry on health. S/U or letter grading.

**200D. Scientific Communication for Atmospheric and Oceanic Scientists (4)** Lecture, three hours; discussion, one hour. Basics of scientific communication. How to efficiently survey literature and read scientific papers. Philosophy of scientific writing. Writing literature review, identifying and articulating gap in scientific literature, writing effective introduction that places scientific question in broader context, and crafting proposal. How to give effective presentation. S/U or letter grading.

**201A. Geophysical Fluid Dynamics I (4)** Lecture, three hours. Fundamental equations of motion. Atmospheric and oceanic approximations. Rotating reference frame. Density stratification. Geostrophic adjustment and balance. Potential vorticity conservation. Vortex dynamics. Acoustic, gravity, inertial, Rossby, and Kelvin waves. Barotropic and baroclinic instability. Ekman boundary layers. Oceanic wind gyres: Sverdrup balance and western boundary currents. Letter grading.

**201B. Geophysical Fluid Dynamics II (4)** Lecture, three hours. Enforced requisite: course 201A. Anelastic approximation. Small-scale gravity waves in atmosphere. Critical levels. Kelvin/Helmholtz instability. Quasi-static oscillations of planetary atmosphere. Equatorial Kelvin and mixed Rossby-gravity (Yanai) waves. Baroclinic and barotropic instabilities in continuously stratified system. General circulation of atmosphere. Jet streams, eddies, storm tracks. Propagation of planetary waves. Wave-mean flow interactions. Noninteraction theorems. Letter grading.

**201C. Atmospheric and Oceanic Turbulence (4)** Lecture, three hours. Requisite: course 200A. Recommended: course 201A. Turbulent flows that occur on relatively small scales (<10 km) in both atmosphere and ocean. Classical homogeneous, shear, convective, and boundary-layer turbulence and its geophysical modification due to stratification, Earth's rotation, and water phase changes. S/U or letter grading.

**202. Introduction to Ocean Science (4)** Lecture, three hours. Fundamentals of ocean physics, chemistry, and biology. Equations of motion, dynamical balances, conservation laws. Ocean circulation and material transport from small-scale eddies and waves to global circulation of thermocline and deep ocean; influences on ecosystem processes, biogeographic provinces, and chemical cycles; implications for global heat transport, sea ice, and climate. S/U or letter grading.

**203A. Introduction to Atmospheric Chemistry (4)** (Same as Civil Engineering M262A.) Lecture, three hours. Requisite for undergraduates: Chemistry 20B. Principles of chemical kinetics, thermochemistry, spectroscopy, and photochemistry; chemical composition and history of Earth's atmosphere; biogeochemical cycles of key atmospheric constituents; basic photochemistry of troposphere and stratosphere, upper atmosphere chemical processes; air pollution; chemistry and climate. S/U or letter grading.

**203B. Atmospheric Physics (4)** Lecture, three hours; discussion, one hour. Requisite: course 200C. Principles of radiative transfer; absorption, emission, and scattering of solar and infrared radiation; radiation budget consideration; aerosols in atmosphere; principles of water droplet and ice crystal formation; diffusion and accretion; precipitation processes; radiative forcings of clouds/aerosols and climate feedback. S/U or letter grading.

**C204. Introduction to Machine Learning for Physical Sciences (4)** Lecture, 90 minutes; laboratory, 90 minutes. Designed for physical sciences students. Practical, hands-on introduction to seven of most popular algorithms of machine learning (ML). Students gain most practical skills to start working in industry or research immediately, using popular Python programming language, together with SciKitLearn ML library, and covering essential theory to understand what algorithms do. Focus on solving typical problems that arise in physical sciences. Covers algorithms in broad areas of ML, including supervised learning (regression and classification) and unsupervised learning (clustering and dimensionality reduction). Lectures and programming exercises. Concurrently scheduled with course C111. S/U or letter grading.

**C205A. Introduction to Solar System Plasmas (4)** Lecture, three hours; discussion, one hour. Introduction to basic plasma physical processes occurring in sun, solar wind, magnetospheres, and ionospheres of planets, using simple fluid (magnetohydrodynamic) models as well as individual particle (radiation belt dynamics) approach. Solar-planetary coupling processes, geomagnetic phenomena, aurora. Concurrently scheduled with course C170. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**205B. Introduction to Solar-Terrestrial Physics (4)** Lecture, three hours; discussion, one hour. Solar, interplanetary, magnetospheric, ionospheric, auroral, geomagnetic phenomenological and theoretical background for studies in space physics. Contextual understanding and literacy in space physics terminology provided. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**205C. Planetary Upper Atmospheres (4)** Lecture, three hours; discussion, one hour. Aeronomy of upper atmospheres of Earth and other planets and some of their satellites—thermospheric structure and morphology, circulations, and disturbances; ionospheres as collisional and magnetized (unmagnetized) plasmas: currents, drifts, and instabilities. Examples of upper atmospheric interaction with lower atmosphere and magnetosphere. S/U (for majors with



consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**206. Introduction to Biophysical Modeling of Land Surface Processes and Land/Atmosphere Interactions (4)** (Same as Geography M206.) Lecture, two hours; laboratory, one hour; reading period, one hour. Designed for graduate students. Presentation of introductory knowledge for graduate students to understand nature, principles, and scope of biophysical modeling of land surface processes, including ideal canopy model, radiation, heat and CO<sub>2</sub> fluxes transfer, and satellite data application. Laboratory sessions included. S/U or letter grading.

**209. Climate Change Assessment (4)** Lecture, three hours; discussion, one hour. Corequisites: graduate atmospheric, oceanic, hydrological, or climate science courses. Lectures, readings, and projects on current issues in projections of future anthropogenic climate change; design and use of resources from Coupled Model Intercomparison Projects (CMIPs), topics from large multiscientist climate assessments, including Intergovernmental Panel on Climate Change (IPCC). Issues in modeling current climate, including natural climate variability, paleoclimate, and global change under standardized scenarios for future anthropogenic greenhouse gases and aerosols. May be repeated for credit. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**210. Planetary Atmospheres and Climates (4)** (Same as Earth, Planetary, and Space Sciences M229.) Lecture, three hours. Recommended: Physics 1C. Planetary atmospheric structure and composition, radiative transfer, and climate dynamics. Topics include origin and evolution of atmospheres, paleoclimate of Earth and Mars, atmospheric thermodynamics, plane-parallel radiative transfer, climate dynamics, climate forcings/feedbacks, bifurcation, and climate hysteresis. S/U or letter grading.

**211. Planetary Wave Dynamics and Teleconnections in Atmosphere/Ocean (4)** Lecture, three hours. Requisite: course 201B. Dynamics of stationary and low-frequency waves in Earth's atmosphere and ocean with applications to remote impacts of climate variability. Propagation of barotropic and baroclinic Rossby waves in spatially varying flow. Interactions with storm tracks and mean flow. Teleconnection patterns. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**212A. Numerical Methods in Geophysical Fluid Dynamics (4)** Lecture, three hours. Requisite or corequisite: course 201A. Basic numerical methods for initial-boundary value problems in fluid dynamics, with emphasis on applications to atmospheric and oceanographic problems. Finite-difference methods and truncation error. Linear and nonlinear computational instability. Computational modes and computational boundary conditions. Nonlinear shallow-water equation model. Spectral methods. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**212B. Numerical Modeling of Atmosphere I (4)** Lecture, three hours. Requisites: courses 201B, 212A. Dynamics of numerical weather prediction and climate models and their computational design. Basic governing equations. Vertical and horizontal coordinates. Quasi-geostrophic and balanced models. Shallow-water equation model. Three-dimensional primitive equation models. Limited-area modeling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**212C. Numerical Modeling of Atmosphere II (4)** Lecture, three hours. Requisite: course 201C. Formulation of physical processes in numerical weather prediction and climate models. Planetary boundary layer processes. Turbulence closure models. Condensation processes. Parameterization of moist-convective processes. Cloudiness parameterization. Parameterization of gravity wave drag. S/U grading.

**213. Global Circulation of Atmosphere (4)** Lecture, three hours; discussion, one hour. Requisite: course 200B. Global atmospheric circulation and its variability in changing climate. Topics include theory of Rossby waves and application to global circulation of atmosphere, dynamics of Hadley cell and monsoon circulations, wave-mean interaction and application to jets/storm tracks, energetics of eddies and available potential energy in atmosphere, and coupling among circulation, moisture, and clouds. S/U or letter grading.

**214. Theoretical Climatic Dynamics (4)** Lecture, three hours. Radiative transfer and energy-balance models (EBMs). Multiple equilibrium climates and their stability. Coupled EBMs of atmosphere and oceans. Climatic history of our planet. Continuum mechanics of ice sheets and mantle. Oscillatory models of Quaternary glaciation cycles. Transitions from equilibrium to periodic and aperiodic climate behavior. Climatic predictability. S/U (for majors

with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**215. Ocean Circulation (4)** Lecture, three hours. Requisites: courses 200A, 202. Phenomena, theory, and modeling of ocean circulations with global to regional scope. Circulation types include thermohaline and wind-driven currents. Examination of relationships between ocean circulations and smaller-scale motions, atmospheric climate, and biogeochemical transport. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**216A. Tropical Motions with Moist Processes (4)** Lecture, three hours. Requisite: course 201C. Cumulus convection and the boundary layer in tropics. Cloud clusters and mesoscale convection systems. Interaction of cumulus convection with large-scale environment. Tropical cyclones. Monsoon meteorology. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**216B. Wave Motions in Tropical Atmosphere (4)** Lecture, three hours. Requisite: course 201B. Basic theory of equatorially trapped waves. Observations of tropical wave disturbances. Generation mechanisms of tropical waves. Tropical 30-50 day oscillation. Quasi-biennial and semiannual oscillations. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**217. Regional Climate Dynamics (4)** Lecture, three hours; discussion, one hour. Global distribution of climate regimes with spatial scales smaller than 100 km. Mechanisms maintaining regional climate variation against larger-scale atmospheric and climate gradients. Regional climate/ecosystem/human system interactions. S/U or letter grading.

**218. Dynamics of Atmosphere/Ocean System (4)** Lecture, three hours. Transfer of properties between atmosphere and ocean; wind-driven ocean currents; coastal upwelling. Air/sea interactions. Effects of oceans on climate. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**219. Statistical Analysis and Visual Explanation of Large Climate Data (4)** Lecture, three hours; discussion, one hour. Introduction to statistical methods to analyze climate data and principles of visual presentation of quantitative information. Review of basic statistical concepts. Principles of visual display of quantitative information. Parametric and non-parametric tests for auto-correlated and non-stationary data, multiplicity, and field significance. Spatial-tempo pattern analyses including cross-spectral analysis, spatio-temporal spectral analysis, empirical orthogonal function (EOF) and extension of EOFs (complex EOF, multivariate EOF, extended EOF). Spatial-temporal canonical correlation analysis (CCA), time-lagged CCA, maximum correlation analysis (or singular value decomposition). Self-organizing map. S/U or letter grading.

**C222. Atmospheric Boundary Layer (4)** Lecture, three hours. Atmospheric boundary layer is lowest portion of atmosphere, representing interface between Earth's surface and atmosphere, is strongly affected by turbulence, and plays important role in exchange of heat, momentum, trace gases, and aerosols between Earth's surface and free troposphere. Investigation of properties of atmospheric boundary layer and processes that determine them. Concurrently scheduled with course C144. S/U or letter grading.

**224A. Atmospheric Turbulence (4)** Lecture, three hours. Kinematics of homogeneous and shear flow turbulence. Surface and planetary boundary layers, including heat transfer and turbulent convection. Survey of field and laboratory observations and their interpretation by theory. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**224B. Atmospheric Diffusion and Air Pollution (4)** (Same as Civil Engineering M262B.) Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**225. Advanced Topics in Aerosol Chemistry and Physics (4)** Lecture, three hours. Requisites: courses M203A, 203B (may be taken concurrently). Study of advanced aerosol processes, including emission processes, optical properties, secondary organic aerosol formation and heterogeneous chemistry, and methods for aerosol measurements. Each student performs class project looking in detail at one aspect covered. May be repeated for credit. S/U or letter grading.

**C227. Advanced Dynamic and Synoptic Meteorology (4)** Lecture, three and one half hours. Weather map analysis, thermodynamic diagrams, satellite interpretation, severe weather forecasting, isentropic analysis, frontogenesis, quasi-geostrophic omega equation. Concurrently scheduled with course C110. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**C227L. Advanced Dynamic and Synoptic Meteorology Laboratory (2)** Laboratory, two hours. Comprehensive weather forecasting exercises and map discussions led by meteorologist. Concurrently scheduled with course C110L. S/U or letter grading.

**C228. Mesometeorology (4)** Lecture, three hours. Requisite: course 101. Observations of phenomena with length scales ranging from 20 km to 2,000 km. Topics include polar lows, airmass thunderstorms, multicell storms, supercell tornadoes, gust fronts, downbursts, microbursts, and dry line. Discussions on design of field project. Concurrently scheduled with course C115. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**229. Mesoscale Modeling (4)** Lecture, three hours. Requisites: courses 201C, C228. Numerical and analytical modeling of convective and mesoscale motions, from shallow heat sources to large complex systems. Model frameworks, assumptions, parameterizations, and solution techniques. Role of modeling efforts in understanding dynamic structure and behavior of systems. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**230A. Atmospheric Chemistry I (4)** Lecture, three hours. Requisite: course M203A. Photochemistry of troposphere; physical chemistry of surfaces and solutions; precipitation chemistry and acid rain; atmospheric organic chemistry; regional and global biogeochemical cycles; current issues in global change. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**230B. Atmospheric Chemistry II (4)** Lecture, three hours. Requisite: course M203A. Photochemistry of stratosphere and mesosphere; basic ionospheric processes; stratospheric pollution and ozone layer; physical chemistry of upper atmosphere clouds and aerosols; comparative photochemistry of planetary atmospheres; observational techniques and results. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**232. Chemical Transport Modeling (4)** Lecture, three hours. Requisites: courses M203A, 230A, 230B. Equations of tracer transport and chemical kinetics modeling in three dimensions; numerical techniques; coupled simulations of gas-phase and aerosol microphysics and chemistry; computational versus observational results; current problems in tracer modeling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**235. Ocean Biogeochemical Dynamics and Climate (4)** (Same as Ecology and Evolutionary Biology M238.) Lecture, three hours. Interaction of ocean biogeochemical cycles with physical climate system. Biogeochemical processes controlling carbon dioxide and oxygen in oceans and atmosphere over timescales from few million years to several years. Anthropogenic perturbation of global carbon cycle and climate. Response of ocean ecosystems to past and future global changes. Use of isotopes to study ocean biogeochemical cycles and climate. Interactions between biogeochemical cycles on land and in ocean. S/U or letter grading.

**236. Terrestrial Biogeochemical Dynamics and Climate (4)** Lecture, three hours. Corequisites: graduate atmospheric, oceanic, hydrological, and climate science courses. Biogeochemical cycles in terrestrial biosphere. Carbon/water/energy/nutrient dynamics. Observational techniques and results. Interactions of terrestrial biogeochemical cycles with climate system on timescales of seconds to centuries. Use of isotopes to study land biogeochemical cycles and climate. Anthropogenic perturbations of global terrestrial biogeochemical cycles and climate feedbacks. Response of land ecosystems to past and future global changes. S/U or letter grading.

**CM237A. Aquatic Geomicrobiology: Metabolisms (4)** (Formerly numbered CM237.) (Same as Earth, Planetary, and Space Sciences CM214A.) Lecture, three hours. Recommended requisite: course M105 or Earth, Planetary, and Space Sciences C107. Study of fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems and how these processes interact with environment. Metabolisms include photoautotrophic (anoxygenic and oxygenic photosynthesis), chemoheterotrophic (fer-

mentation and respiration of organic matter), photoheterotrophic (organic matter degradation with light), and chemoautotrophic (iron, nitrogen, manganese, methane, and sulfur oxidation) pathways. Introduction of principals of bioenergetics (adenosine triphosphate production, Gibbs free energy, chemiosmosis, thermodynamic calculations) and biological isotope fractionation. Concurrently scheduled with course CM114A. S/U or letter grading.

**CM237B. Aquatic Geomicrobiology: Environments (4)** (Same as Earth, Planetary, and Space Sciences CM214B.) Lecture, three hours. Recommended requisite: course CM237A. Broad overview of aquatic geomicrobiological processes in diverse environmental settings (e.g., sediments, microbial mats, water column, wetlands, cold seeps, hydrothermal vents, deep biosphere), and how these processes drive element cycling on Earth. Concurrently scheduled with course CM114B. S/U or letter grading.

**238. How to Write and Publish Scientific Papers (4)** (Formerly numbered 238.) (Same as Earth, Planetary, and Space Sciences M237.) Lecture, three hours. Recommended preparation: planning to prepare or in the process of preparing manuscripts. Introduction to process of scientific manuscript writing and publishing. Offers insights into fun and frustration of manuscript writing, important rules for manuscript structuring and scientific language, and advice on how to deal with review process. Students gain familiarity with general principles of successful publishing process. Addresses different stages of manuscript writing and publishing by answering when are data ready for publishing, where to publish, how to structure manuscript, best way to present data, how to properly get out message, which writing ethics to consider, how to effectively use citation program, how to communicate with reviewers and editors, and efficient ways to manage coauthors. S/U or letter grading.

**240A. Radar Meteorology (4)** Lecture, three hours. Radar detection of spherical and nonspherical particles; use of radar in studying size distributions of cloud and precipitation particles, precipitation intensity and amount, updraft velocities, horizontal wind speed, and turbulence; radar observations of convective clouds, thunderstorms, tornadoes, hurricanes, squall lines, and fronts; clear air echoes. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**C240B. Remote Sensing of Atmosphere and Oceans (4)** Lecture, three hours. Requisite: Physics 1C or 5B. Theory and techniques of remote sensing; atmospheric spectroscopy, scattering, and polarization; passive and active techniques; relevant satellite systems; inversion methods; remote sensing of clouds, aerosols, temperature, precipitation, and trace constituents; remote sensing of oceans and biosphere. Concurrently scheduled with course C160. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**244A. Atmospheric Radiation (4)** Lecture, three hours. Requisite: course 203B. Presentation of computational methods for solar and thermal infrared radiative fluxes and heating rates in clear, aerosol, and cloudy atmospheres for climate studies. Topics include line-by-line and correlated k-distribution methods for treating gaseous absorption, simplified methods for radiative transfer in Rayleigh and Lorenz/Mie atmospheres, and global radiative equilibrium. Use of user-friendly computer code required to perform calculations of radiative fluxes and heating rates in various atmospheric conditions for climate applications. S/U or letter grading.

**244B. Radiation and Climate (4)** Lecture, three hours; laboratory, one hour. Requisite: course 203B. Radiation budget of Earth/atmosphere system observed from satellites. Introduction to one-dimensional radiative-convective and energy-balance climate models. Climatic impact of increases in greenhouse gases and anthropogenic aerosols. Climatic impact of changes in solar constant, solar insolation, and volcanic eruption. Radiative forcing in global climate models: clouds and aerosols. Role of radiation in numerical simulation of interannual variability. S/U or letter grading.

**245. Aerosol-Climate Interactions (4)** Lecture, three hours. Requisite: course 203B. Recommended requisite: course 203A. Study of how aerosols can affect weather and climate by interacting with clouds through their potential to act as cloud condensation or ice nuclei and with radiation through their ability to scatter and absorb solar and terrestrial radiation. Origin of large uncertainty estimates attributed to aerosol-cloud and aerosol-radiation interactions in climate change assessments. Structured around reading and discussion of scientific publications. S/U or letter grading.

**250A. Solar System Magnetohydrodynamics (4)** (Same as Earth, Planetary, and Space Sciences M263A.) Lecture, three hours. Requisite: course C205A. Derivation of MHD equations with two fluid aspects, generalized Ohm's law, small amplitude waves, discontinuities, shock waves, and instabilities. Applications to statics and dynamics of solar wind and planetary magnetospheres and to solar wind/magnetosphere/ionosphere coupling. S/U (for majors with

consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**250B. Solar System Microscopic Plasma Processes (4)** Lecture, three hours. Requisite: course C205A. Adiabatic charged particle dynamics; incoherent radiation processes; collective effects in plasma; propagation characteristics of electrostatic and electromagnetic waves; introduction to resonant interaction between charged particles and plasma waves. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**256. Ionospheric Electrodynamics (4)** Lecture, three hours. Ionospheric structure, currents, and electric fields; equatorial and high-latitude ionospheres; ionospheric control of magnetospheric phenomena. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**257. Radiation Belt Plasma Physics (4)** Lecture, three hours. Requisite: course 250B. Turbulent plasma instabilities and their relation to satellite observations and magnetospheric structure. Processes responsible for source, loss, and transport of energetic radiation belt particles. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**258. Sources and Losses of Magnetospheric Plasma (4)** Lecture, three hours. Transfer of plasma across magnetopause, sources for magnetotail, ionospheric plasma flow to magnetosphere, precipitation of magnetospheric particles, plasmasphere, and ring current. S/U or letter grading.

**259. Space Weather (4)** Lecture, three hours. Identification, description, and theories for major disturbances in magnetosphere/ionosphere/thermosphere system. Storms, substorms, convection bays, and other disturbances. Connections to interplanetary conditions, particle injection and precipitation, currents and fields. S/U or letter grading.

**C260. Data Analysis in Atmospheric and Oceanic Sciences (4)** Lecture, three hours; laboratory, one hour. Enforced requisite: one course from 101 through M105. Overview of data analytic methods in common use in atmospheric and oceanic research. Linear models, principal component analysis (empirical orthogonal function), time-series analysis, and clustering methods. Model validation and evaluation, significance tests, error analysis, bias detection. Emphasis on practical applications, with specific examples from atmospheric and oceanic sciences. Concurrently scheduled with course C182. S/U or letter grading.

**270. Seminar: Atmospheric Sciences (2)** Seminar, one hour. May be repeated for credit. S/U or letter grading.

**271. Seminar: Atmospheric Dynamics (2)** Seminar, one hour. May be repeated for credit. S/U or letter grading.

**272A. Seminar: Climate Dynamics. (2 to 4)** (Same as Earth, Planetary, and Space Sciences M270A and Geography M270A.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**272B. Seminar: Climate Dynamics. (2 to 4)** (Same as Earth, Planetary, and Space Sciences M270B and Geography M270B.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**272C. Seminar: Climate Dynamics. (2 to 4)** (Same as Earth, Planetary, and Space Sciences M270C and Geography M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**274. Seminar: Atmospheric Composition and Processes (2)** Seminar, one hour. Seminar series covering talks in broad research area of atmospheric composition and processes. Presentations by internal and external speakers. May be repeated for credit. S/U grading.

**275A. Current Research in Space Physics (2)** (Same as Earth, Planetary, and Space Sciences M288A.) Seminar, two hours. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**275B. Current Research in Space Physics (2)** (Same as Earth, Planetary, and Space Sciences M288B.) Seminar, two hours. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**275C. Current Research in Space Physics (2)** (Same as Earth, Planetary, and Space Sciences M288C.) Seminar, two hours. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**276. Seminar: Mesoscale Processes (2)** Seminar, one hour. Selected topics of current research interest in convection, extratropical cyclones, and fronts. May be repeated for credit. S/U or letter grading.

**277. Seminar: Coastal Ocean (2)** Seminar, one hour. Selected topics of current interdisciplinary research in marine and coastal sciences, including physical oceanography, biogeochemistry, marine biology, coastal engineering, atmospheric processes, and health-related issues. May be repeated for credit. S/U grading.

**281. Special Topics in Dynamic Meteorology. (2 to 4)** Lecture, two hours. Individual meetings with instructor to be arranged. Content varies from year to year. S/U or letter grading.

**282. Special Topics in Oceanography. (2 to 4)** Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

**283. Special Topics in Atmospheric Physics (2 to 4)** Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

**284. Special Topics in Atmospheric Chemistry. (2 to 4)** Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

**285. Special Topics in Solar Planetary Relations. (2 to 4)** Lecture, two hours. Individual meetings with instructor to be arranged. Selected topics of current research interest in solar wind, magnetospheric, or ionospheric physics. S/U or letter grading.

**286. Statistical Prediction and Verification (3)** Seminar, one hour; discussion, one hour. Statistical prediction and verification. Topics include multiple linear regression, logistic regression (probability prediction), objective prediction using traditional statistical methods, ensemble prediction. S/U grading.

**287. Machine Learning Approaches for Determining Causality in Coupled Earth System Data (3)** Seminar, three hours; discussion, one hour. Determining causality in earth system data is challenging because of strong coupling between different variables. Study of state-of-art statistical approaches that are designed to infer causality between variables that are strongly coupled on different time scales—for example, ocean-atmospheric coupling and land-vegetation-atmospheric coupling, and for nonlinear coupling. Methods include but not limited to Granger causality, generalized equilibrium feedback assessment, step-wise generalized equilibrium feedback assessment, empirical dynamic modeling, and area weighted connectivity. Offers stimulating group learning experience through reading papers and discussion, and if possible, application of some of methods to earth system data. S/U grading.

**296A. Advanced Topics in Atmospheric Sciences: Ocean Dynamics of Atmosphere (2)** Research group meeting, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296B. Advanced Topics in Atmospheric Sciences: Boundary Layers, Clouds, and Climate (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296C. Advanced Topics in Atmospheric Sciences: Numerical Mesoscale Modeling (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296D. Advanced Topics in Atmospheric Sciences: Climate Dynamics (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296E. Advanced Topics in Atmospheric Sciences: Numerical Modeling of Atmosphere and Ocean (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296F. Advanced Topics in Atmospheric Sciences: Hierarchical Modeling of Ocean/Atmosphere System (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296G. Advanced Topics in Atmospheric Sciences: Upper Atmosphere and Space Physics (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296H. Advanced Topics in Atmospheric Sciences: Recent Advances in Atmospheric Chemistry (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296I. Advanced Topics in Atmospheric Sciences: Upper Atmospheric Dynamics (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296J. Advanced Topics in Atmospheric Sciences: Experimental Mesoscale Meteorology (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296K. Advanced Topics in Atmospheric Sciences: Tropical Meteorology (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296L. Advanced Topics in Atmospheric Sciences: Geophysical Fluid Dynamics, Oceanography, and Climate (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296M. Advanced Topics in Atmospheric Sciences: Radiation and Remote Sensing (2)** Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296N. Advanced Topics in Atmospheric Sciences: Tropospheric Chemistry and Climate Modeling and Analysis (2)** Research group meeting, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**296O. Regional to Local Modeling of Atmospheric Composition and Climate Interactions (2)** Research group meeting, two hours. Presentation and discussion of research on modeling of air quality and atmospheric composition from local to regional scales. Some topics include research in air quality forecasting to improve predictive capability of pollution episodes (e.g., haze conditions, forest fires, dust outbreaks); data assimilation and inverse modeling, i.e., using atmospheric composition observations (e.g., satellite, ground based, airborne) to improve air quality forecasts or better constrain emission sources; and investigation on modeling of aerosols (particles in atmosphere) and their interactions with clouds and radiation, which are in part responsible for uncertainties in climate change projections. Presentations by participants and invited speakers from other research groups. S/U grading.

**296P. Advanced Topics in Atmospheric Sciences: Atmospheric Chemistry of Air Pollution, Aerosols, and Climate (2)** Research group meeting, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**495. Teaching Atmospheric and Oceanic Sciences (2)** Seminar, one hour; two-day intensive training session prior to Fall Quarter. Required of all new teaching assistants and recommended for new PhD students and graduate students intending to be teaching assistants during academic year. Introduction to classroom teaching for general education and upper-division departmental courses. Topics include pedagogical techniques, preparation, academic integrity, and integration of technology and electronic communications. S/U grading.

**596. Directed Studies for Graduate Students. (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Preparation for MS Comprehensive Examination. (2 to 8)** Tutorial, to be arranged. S/U grading.

**598. Research for and Preparation of MS Thesis. (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. Research for PhD Dissertation (2 to 8)** Tutorial, to be arranged. S/U grading.

# Bioengineering

## Bioengineering Courses

### Lower Division

**10. Introduction to Bioengineering (2)** Lecture, two hours; discussion, one hour; outside study, three hours. Preparation: high school biology, chemistry, mathematics, physics. Introduction to scientific and technological bases for established and emerging subfields of bioengineering, including biosensors, bioinstrumentation, and biosignal processing, biomechanics, biomaterials, tissue engineering, biotechnology, biological imaging, biomedical optics and lasers, neuroengineering, and biomolecular machines. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Bioengineering Fundamentals (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 32A, Physics 1A. Fundamental basis for analysis and design of biological and biomedical devices and systems. Classical and statistical thermodynamic analysis of biological systems. Material, energy, charge, and force balances. Introduction to network analysis. Letter grading.

**C101. Engineering Principles for Drug Delivery (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 33B, Physics 1B. Application of engineering principles for designing and understanding delivery of therapeutics. Discussion of physics and mathematics required for understanding colloidal stability. Analysis of concepts related to both modeling and experimentation of endocytosis and intracellular trafficking mechanisms. Analysis of diffusion of drugs, coupled with computational and engineering mathematics approaches. Concurrently scheduled with course C201. Letter grading.

**C102. Human Physiological Systems for Bioengineering I (4)** Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course C202. Letter grading.

**C104. Physical Chemistry of Biomacromolecules (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 7A. To understand biological materials and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Concurrently scheduled with course C204. Letter grading.

**C105. Engineering of Bioconjugates (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable

linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Concurrently scheduled with course C205. Letter grading.

**C106. Topics in Bioelectricity for Bioengineers (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20B, Life Sciences 7A, Mathematics 33B, Physics 1C. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Concurrently scheduled with course C206. Letter grading.

**C107. Polymer Chemistry for Bioengineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course C104 or C105. Fundamental concepts of polymer synthesis, including step-growth, chain growth (ionic, radical, metal catalyzed), and ring-opening, with focus on factors that can be used to control chain length, chain length distribution, and chain-end functionality, chain copolymerization, and stereochemistry in polymerizations. Presentation of applications of use of different polymerization techniques. Concepts of step-growth, chain-growth, ring-opening, and coordination polymerization, and effects of synthesis route on polymer properties. Lectures include both theory and practical issues demonstrated through examples. Concurrently scheduled with course C207. Letter grading.

**110. Biotransport and Bioreaction Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: course 100, Mathematics 33B. Introduction to analysis of fluid flow, heat transfer, mass transfer, binding events, and biochemical reactions in systems of interest to bioengineers, including cells, tissues, organs, human body, extracorporeal devices, tissue engineering systems, and bioartificial organs. Introduction to pharmacokinetic analysis. Letter grading.

**120. Biomedical Transducers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 32B, Physics 1C. Principles of transduction of various physical and biomedical parameters into electrical signals. Theory and design of basic circuits to amplify, measure, and filter these signals. Theory of operation and design of electrocardiogram, blood pressure transducer, Coulter Counter, and other biomedical instrumentation. Letter grading.

**121. Introduction to Microcontrollers (4)** Lecture, one hour; discussion, one hour; laboratory, three hours. Requisites: Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20 or Computer Science 31, and Electrical and Computer Engineering 100, or equivalent. Project-based hands-on introduction to basic and advanced concepts involved in development of projects using microcontrollers for projects in robotics and motion, light and sound, sensing and data acquisition, signal amplification and filtering, communication with specialty integrated circuits, and computer interface using Java-based processing language. Uses of Arduino platform to explore digital and analog input/output, SPI and I2C, interrupts, timing, use and writing of software libraries, and other advanced topics. Students construct and analyze first-order passive filters, operational amplifier (op-amp) circuits, and related material to equip them to make creative software and hardware projects, as well as develop their own instrumentation for subsequent laboratory or design work. Project-based homework has small theory component. Includes final design project. Letter grading.

**122. Introduction to Medical Imaging (4)** Lecture, four hours; discussion, four hours; outside study, four hours. Requisites: Mathematics 33A, Physics 1C, or consent of instructor. Introduction of principles and survey of technology and applications in field of biomedical imaging. Letter grading.

**C131. Nanopore Sensing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 120, Life Sciences 7A, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Concurrently scheduled with course C231. Letter grading.

**132. Nanogenerators for Bioengineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Addresses fundamentals, materials, processes, manufacturing, and devices fabrication for nanogenerators.

Showcases key biomedical applications, in particular, nanogenerators made for circulatory system, neural system, cell modulation, microbe disinfection, and biodegradable electronics. Functionality of nanogenerators can serve for energy, sensing, and therapy purposes in bioengineering. Nanogenerators can be key components to realize autonomous intelligent closed-loop sensing and therapeutic system on human body for personalized health care to conquer medical fields in Internet of Things era. Letter grading.

**C135. Orthopaedic Biomechanical Engineering (4)** (Formerly numbered 125.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Physics 1A, 1B. Overview of central topics of orthopaedic biomechanical engineering, with focus on orthopaedic implant performance and how to evaluate new and existing implants. Topics include orthopaedic and biomechanical terminology and basic anatomy; introduction to free body diagrams and calculations of joint reaction forces; material versus structural properties; introduction to stress analysis; mechanisms of fracture patterns and fracture fixation; biomechanics of total joint replacement; contemporary bearing materials and tribology; design and evaluation of total joint replacements; and introduction to spine biomechanics, spine implants, and pure moment testing. Concurrently scheduled with course C235. Letter grading.

**C139A. Biomolecular Materials Science I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different types of interactions that exist between biomolecules, such as van der Waals interactions, entropically modulated electrostatic interactions, hydrophobic interactions, hydration and solvation interactions, polymer-mediated interactions, depletion interactions, molecular recognition, and others. Illustration of these ideas using examples from bioengineering and biomedical engineering. Students should be able to make simple calculations and estimates that allow them to engage broad spectrum of bioengineering problems, such as those in drug and gene delivery and tissue engineering. May be taken independently for credit. Concurrently scheduled with course C239A. Letter grading.

**C139B. Biomolecular Materials Science II (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Course C139A is not requisite to C139B. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different basic types of biomolecules, with emphasis on nucleic acids, proteins, and lipids. Study of how biological and biomimetic systems organize into their functional forms via self-assembly and how these structures impart biological function. Illustration of these ideas using examples from bioengineering and biomedical engineering. Case study on current topics, including drug delivery, gene therapy, cancer therapeutics, emerging pathogens, and relation of self-assembly to disease states. May be taken independently for credit. Concurrently scheduled with course C239B. Letter grading.

**CM140. Introduction to Biomechanics (4)** (Same as Mechanical and Aerospace Engineering CM140.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mechanical and Aerospace Engineering 101, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM240. Letter grading.

**CM145. Molecular Biotechnology for Engineers (4)** (Same as Chemical Engineering CM145.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Chemical Engineering 45 or Life Sciences 7C. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM245. Letter grading.

**C147. Applied Tissue Engineering: Clinical and Industrial Perspective (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course CM102, Chemistry 20A, 20B, 20L, Life Sciences 7A. Overview of central topics of tissue engineering, with focus on how to build artificial tissues into regulated clinically viable products. Topics include biomaterials selection, cell source, delivery methods, FDA approval processes, and physical/chemical and biological testing. Case studies include skin and artificial skin, bone and cartilage, blood vessels, neurotissue engineering, and liver, kidney, and other organs. Clinical and industrial perspectives of tissue engineering products. Manufacturing constraints, clinical limitations, and regulatory challenges in design and development of tissue-engineering devices. Concurrently scheduled with course C247. Letter grading.

**153. Introduction to Microscale and Nanoscale Manufacturing (4)** (Same as Chemical Engineering M153, Electrical and Computer Engineering M153, and Mechanical and Aerospace Engineering M183B.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern clean-room environment. Letter grading.

**C155. Fluid-Particle and Fluid-Structure Interactions in Microflows (4)** Lecture, four hours; laboratory, one hour; outside study, seven hours. Enforced requisite: course 110. Introduction to Navier/Stokes equations, assumptions, and simplifications. Analytical framework for calculating simple flows and numerical methods to solve and gain intuition for complex flows. Forces on particles in Stokes flow and finite-inertia flows. Flows induced around particles with and without finite inertia and implications for particle-particle interactions. Secondary flows induced by structures and particles in confined flows. Particle separations by fluid dynamic forces: field-flow fractionation, inertial focusing, structure-induced separations. Application concepts in internal biological flows and separations for biotechnology. Helps students become sufficiently fluent with fluid mechanics vocabulary and techniques, design and model microfluidic systems to manipulate fluids, cells, and particles, and develop strong intuition for how fluid and particles behave in arbitrarily structured microchannels over range of Reynolds numbers. Concurrently scheduled with course C255. Letter grading.

**165EW. Bioengineering Ethics (4)** Lecture, four hours; discussion, three hours; outside study, five hours. All professions have ethical rules that derive from moral theory. Bioethics is well-established discipline that addresses ethical problems about life, such as when do fertilized eggs become people? Should ending of life ever be assisted? At what cost should it be maintained? Unlike physicians, bioengineers do not make these decisions in practice. Engineering ethics addresses ethical problems about producing devices from molecules to bridges, such as when do concerns about risk outweigh concerns about cost? When are weapons too dangerous to design? At what point does benefit of committing to building devices outweigh need to wait for more scientific confirmation of their effectiveness? Bioengineers must be aware of consequences of applying such devices to all living systems. Emphasis on research and writing within engineering environments. Satisfies engineering writing requirement. Letter grading.

**C166. Wearable Bioelectronics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Practice of human health care may be on cusp of revolution, driven by unprecedented level of personalization enabled by advances in technology, specifically, transformation of wearable devices from curiosities that provide qualitative information for fitness enthusiasts to sophisticated systems that produce clinical-grade data for physicians. Introduction of cutting-edge research in field of wearable bioelectronics. Addresses fundamentals, materials, processes, and devices for wearable bioelectronics, showcasing key applications including device fabrication, manufacturing, and health-care applications. Concurrently scheduled with course C266. Letter grading.

**167L. Bioengineering Laboratory (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: Chemistry 20L. Laboratory experiments in fluorescence microscopy, bioconjugation, soft lithography, and cell culture culminate in design of engineered surface for cell growth. Introduction to techniques used in laboratories and their underlying physical or chemical properties. Case studies connect laboratory techniques to current biomedical engineering research and reinforce experimental design skills. Letter grading.

**170. Cell Engineering and Laboratory (4)** Lecture, four hours; laboratory, four hours; outside study, four hours. Preparation: general background on cell biology, calculus, and differential equations. Comprehensive introduction of cell engineering. Topics include quantitative and experimental analysis of cell behavior such as cell growth, migration and differentiation, biomaterial fabrication, cell-material interactions, cell signaling, tissue remodeling, and immunomodulation/isolation. Letter grading.

**175. Machine Learning and Data-Driven Modeling in Bioengineering (4)** (Formerly numbered C175.) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: Civil Engineering M20 or Mechanical and Aerospace Engineering M20 or Computer Science 31, Mathematics 32B, 33A. Overview of foundational data analysis and machine-learning methods in bioengineering, focusing on how these techniques can be applied to interpret experimental observations. Topics include probabilities, distributions, cross-validation, analysis of variance, reproducible computational workflows, dimen-

sionality reduction, regression, hidden Markov models, and clustering. Students gain theoretical and practical knowledge of data analysis and machine-learning methods relevant to bioengineering. Application of these methods to experimental data from bioengineering studies. Students become sufficiently familiar with these techniques to design studies incorporating such analyses, execute analysis, and work in teams using similar approaches, and ensure correctness of their results. Letter grading.

**176. Principles of Biocompatibility (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 100, Mathematics 33B, Physics 1C. Biocompatibility at systemic, tissue, cellular, and molecular levels. Biomechanical compatibility, stress/strain constitutive equations, cellular and molecular response to mechanical signals, biochemical and cellular compatibility, immune response. Letter grading.

**177A. Bioengineering Capstone Design I (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisites: courses 167L, 176. Lectures, seminars, and discussions on aspects of biomedical device and therapeutic design, including topics such as need finding, intellectual property, entrepreneurship, regulation, and project management. Working in teams, students develop innovative solutions to address current problems in medicine and biology. Sourcing and ordering of materials and supplies relevant to student projects. Exploration of different experimental and computational methods. Scientific presentation of progress. Letter grading.

**177B. Bioengineering Capstone Design II (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: course 177A. Lectures, seminars, and discussions on aspects of biomedical device and therapeutic design, including meetings with scientific/clinical advisers and guest lectures from scientists in industry. Working in teams, students develop innovative solutions to address current problems in medicine and biology. Students conduct directed experiments and computational modeling, give oral presentations, write reports, and participate in bioengineering design competition. Letter grading.

**CM178. Introduction to Biomaterials (4)** (Same as Materials Science CM180.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 104. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM278. Letter grading.

**C179. Biomaterials-Tissue Interactions (4)** Lecture, three hours; outside study, nine hours. Requisite: course CM178. In-depth exploration of host cellular response to biomaterials: vascular response, interface, and clotting, biocompatibility, animal models, inflammation, infection, extracellular matrix, cell adhesion, and role of mechanical forces. Concurrently scheduled with course C279. Letter grading.

**180. System Integration in Biology, Engineering, and Medicine I (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Enforced requisites: courses 100, 110, 120, Life Sciences 7A, Physics 1C. Corequisite: course 180L. Part I of two-part series. Molecular basis of normal physiology and pathophysiology, and engineering design principles of cardiovascular and pulmonary systems. Fundamental engineering principles of selected medical therapeutic devices. Letter grading.

**180L. System Integration in Biology, Engineering, and Medicine I Laboratory (4)** Lecture, one hour; laboratory, four hours; clinical visits, four hours; outside study, three hours. Corequisite: course 180. Hands-on experimentation and clinical applications of selected medical therapeutic devices associated with cardiovascular and pulmonary disorders. Letter grading.

**182. Dynamic Biosystem Modeling and Simulation Methodology (4)** (Same as Computer Science M182.) Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, five hours. Requisites: Life Sciences 30A and 30B, or Mathematics 3A and 3B, or 31A and 31B. Recommended requisite or corequisite: Mathematics 3C, 32A, or 32T. For undergraduate students in life, computational, engineering, and mathematical sciences. Active learning approach. Introduction to explicit modeling and simulation of dynamic biological systems. Basic methodology for transforming biology, biochemistry, and physiology into system diagrams, graphs, and mathematical expressions for studying their behavior. Structural models, formulated from basic conservation and mass action laws and feedback concepts, are further transformed into first-order differential equations, and implemented in simulation diagrams for quantifying and exploring biosystem properties. Examples show how to use these explicit models to gain clarity on nature of biosystem phenomena, and frame questions and explore new ideas for research. Letter grading.

**C183. Targeted Drug Delivery and Controlled Drug Release (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding

of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemistry of materials and physical presentation of devices and compounds used in delivery and release. Concurrently scheduled with course C283. Letter grading.

**184. Introduction to Computational and Systems Biology (2)** (Same as Computational and Systems Biology M184 and Computer Science M184.) Lecture, two hours; outside study, four hours. Enforced requisites: one course from Civil Engineering M20, Computer Science 31, Mechanical and Aerospace Engineering M20, or Program in Computing 10A; and Life Sciences 30B or Mathematics 3B or 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

**C185. Introduction to Tissue Engineering (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course CM102 or CM202, Chemistry 20A, 20B, 20L. Tissue engineering applies principles of biology and physical sciences with engineering approach to regenerate tissues and organs. Guiding principles for proper selection of three basic components for tissue engineering: cells, scaffolds, and molecular signals. Concurrently scheduled with course C285. Letter grading.

**CM186. Computational Systems Biology: Modeling and Simulation of Biological Systems (5)** (Same as Computational and Systems Biology M186, Computer Science CM186, and Ecology and Evolutionary Biology M178.) Lecture, four hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 30A, 30B, Mathematics 32A or M32T, 33A, and 33B; or Mathematics 31A, 31B, 32A or M32T, 33A, and 33B. Dynamic biosystem modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Intermediate linear and nonlinear control system, multicompartmental, epidemiological, pharmacokinetic, and other biomodeling methods applied to life sciences problems at molecular, cellular, organ, and population levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into dynamical mathematical models, and implementing them for simulation, quantification, and analysis. Numerical simulation, optimization, and parameter identifiability and search algorithms, with model discrimination and analysis and software exercises in PC laboratory assignments. Concurrently scheduled with course CM286. Letter grading.

**CM187. Research Communication in Computational and Systems Biology (4)** (Same as Computational and Systems Biology M187 and Computer Science CM187.) Lecture, four hours; outside study, eight hours. Requisites: course M182 or CM186 or Computational and Systems Biology M150; and research experience (course 199, Computational and Systems Biology 199, Computer Science 199, or equivalent). Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM287. Letter grading.

**188. Special Courses in Bioengineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Special topics in bioengineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.



**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**194. Research Group Seminars: Bioengineering (4)** Seminar, three hours. Limited to bioengineering undergraduate students who are part of research group. Study and analysis of current topics in bioengineering. Discussion of current research literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. Letter grading.

**199. Directed Research in Bioengineering. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**C201. Engineering Principles for Drug Delivery (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 33B, Physics 1B. Application of engineering principles for designing and understanding delivery of therapeutics. Discussion of physics and mathematics required for understanding colloidal stability. Analysis of concepts related to both modeling and experimentation of endocytosis and intracellular trafficking mechanisms. Analysis of diffusion of drugs, coupled with computational and engineering mathematics approaches. Concurrently scheduled with course C101. Letter grading.

**C202. Human Physiological Systems for Bioengineering I (4)** Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course C102. Letter grading.

**C204. Physical Chemistry of Biomacromolecules (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 7A. To understand biological materials and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Concurrently scheduled with course C104. Letter grading.

**C205. Engineering of Bioconjugates (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Concurrently scheduled with course C105. Letter grading.

**C206. Topics in Bioelectricity for Bioengineers (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20B, Life Sciences 7A, Mathematics 33B, Physics 1C. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Concurrently scheduled with course C106. Letter grading.

**C207. Polymer Chemistry for Bioengineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course C204 or C205. Fundamental concepts of polymer synthesis, including step-growth, chain growth (ionic, radical, metal catalyzed), and ring-opening, with focus on factors that can be used to control chain length, chain length distribution, and chain-end functionality, chain copolymerization, and stereochemistry in polymerizations. Presentation of applications of use of different polymerization techniques. Concepts of step-growth, chain-growth, ring-opening, and coordination polymerization, and effects of synthesis route on polymer properties. Lectures include both theory and practical issues demonstrated through examples. Concurrently scheduled with course C107. Letter grading.

**209. Signal and Image Processing for Biomedicine (4)** (Same as Physics and Biology and Medicine M209.) Lecture, four hours; laboratory, four hours. Preparation: basic calculus or linear algebra and undergraduate probability. Mathematics and statistical fundamentals prevalent in biomedical physics studies. Notion and basic descriptions of linear shift-invariance and point spread functions in continuous and discrete time. Sampling theory and Fourier analysis. Signal representation of vector spaces, projection theorem, and least-squares approximations. Discussion of signal subspace methods, correlation and independence, principal component analysis, and independent component analysis. Basic ideas in inverse problems and optimization. Application in medical and signal processing. Development of geometric and informatics intuitions behind mathematics and statistics. Light derivations and MATLAB programming. S/U or letter grading.

**214A. Digital Speech Processing (4)** (Same as Electrical and Computer Engineering M214A.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: Electrical and Computer Engineering 113. Theory and applications of digital processing of speech signals. Mathematical models of human speech production and perception mechanisms, speech analysis/synthesis. Techniques include linear prediction, filter-bank models, and homomorphic filtering. Applications to speech synthesis, automatic recognition, and hearing aids. Letter grading.

**215. Biochemical Reaction Engineering (4)** (Same as Chemical Engineering CM215.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Chemical Engineering 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. Letter grading.

**217. Biomedical Imaging (4)** (Same as Electrical and Computer Engineering M217.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: Electrical and Computer Engineering 114 or 211A. Optical imaging modalities in biomedicine. Other nonoptical imaging modalities discussed briefly for comparison purposes. Letter grading.

**219. Principles and Applications of Magnetic Resonance Imaging (4)** (Same as Physics and Biology in Medicine M219.) Lecture, three hours; discussion, one hour. Basic principles of magnetic resonance (MR), physics, and image formation. Emphasis on hardware, Bloch equations, analytic expressions, image contrast mechanisms, spin and gradient echoes, Fourier transform imaging methods, structure of pulse sequences, and various scanning parameters. Introduction to advanced techniques in rapid imaging, quantitative imaging, and spectroscopy. Letter grading.

**220. Introduction to Medical Informatics (2)** Lecture, two hours; outside study, four hours. Designed for graduate students. Introduction to research topics and issues in medical informatics for students new to field. Definition of this emerging field of study, current research efforts, and future directions in research. Key issues in medical informatics to expose students to different application domains, such as information system architectures, data and process modeling, information extraction and representations, information retrieval and visualization, health services research, telemedicine. Emphasis on current research endeavors and applications. S/U grading.

**221. Human Anatomy and Physiology for Medical and Imaging Informatics (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to basic human anatomy and physiology, with particular emphasis on understanding and visualization of anatomy and physiology through medical images. Topics relevant to acquisition, representation, and dissemination of anatomical knowledge in computerized clinical applications. Topics include chest, cardiac, neurology, gastrointestinal/genitourinary, endocrine, and musculoskeletal systems. Introduction to basic imaging physics (magnetic resonance, computed tomography, ultrasound, computed radiography) to provide context for imaging modalities predominantly used to view human anatomy. Geared toward nonphysicians who require more formal understanding of human anatomy/physiology. Letter grading.

**223A. Programming Laboratory for Medical and Imaging Informatics I (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisites: Computer Science 31, 32, Program in Computing 20A, 20B. Course 223A is requisite to 223B, which is requisite to 223C. Designed for graduate

students. Programming laboratory to support coursework in other medical and imaging informatics core curriculum courses. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used in image processing and medical information system infrastructures. Integrated with topics presented in course M227 to reinforce concepts presented with practical experience. Projects focus on understanding medical networking issues and implementation of basic protocols for healthcare environment, with emphasis on use of DICOM. Introduction to basic tools and methods used within informatics. Letter grading.

**223B. Programming Laboratory for Medical and Imaging Informatics II (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisite: course 223A. Designed for graduate students. Programming laboratory to support coursework in other medical and imaging informatics core curriculum courses. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used in image processing and medical information system infrastructures. Integrated with topics presented in courses 223A, M227, and M228 to reinforce concepts presented with practical experience. Projects focus on medical image manipulation and decision support systems. Letter grading.

**223C. Programming Laboratory for Medical and Imaging Informatics III (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisite: course 223B. Designed for graduate students. Programming laboratory to support coursework in other medical and imaging informatics core curriculum courses. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used to extract meaningful features from medical text and imaging data and visualize results. Integrated with topics presented in courses 224B and M226 to reinforce concepts presented with practical experience. Projects focus on medical information retrieval, knowledge representation, and visualization. Letter grading.

**224A. Physics and Informatics of Medical Imaging (4)** Lecture, four hours; laboratory, eight hours. Requisites: Mathematics 33A, 33B. Designed for graduate students. Introduction to principles of medical imaging and imaging informatics for nonphysicists. Overview of core imaging modalities: X ray, computed tomography (CT), and magnetic resonance (MR). Topics include signal generation, localization, and quantization. Image representation and analysis techniques such as Markov random fields, spatial characterization (atlases), denoising, energy representations, and clinical imaging workstation design. Provides basic understanding of issues related to basic medical image acquisition and analysis. Current research efforts with focus on clinical applications and new types of information made available through these modalities. Letter grading.

**224B. Advances in Imaging Informatics (4)** Lecture, four hours; outside study, eight hours. Overview of informatics-based applications of medical imaging with focus on various advances in field, such as content-based image retrieval, computer-aided detection/diagnosis, and imaging genomics. Introduction to core concepts in information retrieval (IR), reviewing seminal papers on evaluating IR systems and their use in medicine (e.g., teaching files, case-based retrieval, etc.). Examination of specific techniques for image feature extraction and processing, feature representation, indexing and querying, and classification (machine/deep learning). Survey of clinical applications of these techniques and ongoing challenges. Letter grading.

**225. Bioseparations and Bioprocess Engineering (4)** (Same as Chemical Engineering CM225.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced corequisite: Chemical Engineering 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Letter grading.

**226. Medical Knowledge Representation (4)** (Same as Information Studies M253.) Seminar, four hours; outside study, eight hours. Designed for graduate students. Issues related to medical knowledge representation and its application in healthcare processes. Topics include data structures used for representing knowledge (conceptual graphs, frame-based models), different data models for representing spatio-temporal information, rule-based implementations, current statistical methods for discovery of knowledge (data mining, statistical classifiers, and hierarchical classification), and basic information retrieval. Review of work in constructing ontologies, with focus on problems in implementation and definition. Common medical ontologies, coding schemes, and standardized indices/terminologies (SNOMED, UMLS). Letter grading.

**227. Medical Information Infrastructures and Internet Technologies (4)** (Same as Information Studies M254.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to networking, communications, and information infrastructures in medical environment. Exposure to basic concepts related to networking at several levels: low-level (TCP/IP, services), medium-level (network topologies), and high-level (distributed computing, Web-based services) implementations. Commonly used medical communica-

tion protocols (HL7, DICOM) and current medical information systems (HIS, RIS, PACS). Advances in networking, such as wireless health systems, peer-to-peer topologies, grid/cloud computing. Introduction to security and encryption in networked environments. Letter grading.

**228. Medical Decision Making (4)** (Same as Information Studies M255.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of issues related to medical decision making. Introduction to concept of evidence-based medicine and decision processes related to process of care and outcomes. Basic probability and statistics to understand research results and evaluations, and algorithmic methods for decision-making processes (Bayes theorem, decision trees). Study design, hypothesis testing, and estimation. Focus on technical advances in medical decision support systems and expert systems, with review of classic and current research. Introduction to common statistical and decision-making software packages to familiarize students with current tools. Letter grading.

**229. Advanced Topics in Magnetic Resonance Imaging (4)** (Same as Physics and Biology in Medicine M229.) Lecture, four hours. Requisite: course M219. Designed for students interested in pursuing research related to development or translation of new magnetic resonance imaging (MRI) technique. Basic tools and understanding of recent MRI developments that have had high impact on field, involve novel pulse sequence design or image reconstructions, and enable imaging of anatomy or function in way that surpasses what is currently possible with any modality. Topics include in-depth sequence simulation, RF pulse design, rapid image acquisition, parallel imaging, compressed sensing, image reconstruction and processing, motion encoding and compensation, chemical-shift imaging and understanding, and understanding/avoiding artifacts. Programming exercises in MATLAB to provide hands-on experience. Letter grading.

**C231. Nanopore Sensing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 120, Life Sciences 7A, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Concurrently scheduled with course C131. Letter grading.

**233A. Medtech Innovation I: Entrepreneurial Opportunities in Medical Technology (4)** (Same as Management M271A.) Lecture, three hours; outside study, nine hours. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Focus on understanding how to identify unmet clinical needs, properly filtering through these needs using various acceptance criteria, and selecting promising needs for which potential medtech solutions are explored. Students work in groups to expedite traditional research and development processes to invent and implement new medtech devices that increase quality of clinical care and result in improved patient outcomes in hospital system. Introduction to intellectual property basics and various medtech business models. Letter grading.

**233B. Medtech Innovation II: Prototyping and New Venture Development (4)** (Same as Management M271B.) Lecture, three hours; outside study, nine hours. Requisite: course M233A. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Development of medtech solutions for unmet clinical needs previously identified in course M233A. Steps necessary to commercialize viable medtech solutions. Exploration of concept selection, business plan development, intellectual property filing, financing strategies, and device prototyping. Letter grading.

**C235. Orthopaedic Biomechanical Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Physics 1A, 1B. Overview of central topics of orthopaedic biomechanical engineering, with focus on orthopaedic implant performance and how to evaluate new and existing implants. Topics include orthopaedic and biomechanical terminology and basic anatomy; introduction to free body diagrams and calculations of joint reaction forces; material versus structural properties; introduction to stress analysis; mechanisms of fracture patterns and fracture fixation; biomechanics of total joint replacement; contemporary bearing materials and tribology; design and evaluation of total joint replacements; and introduction to spine biomechanics, spine implants, and pure moment testing. Concurrently scheduled with course C135. Letter grading.

**236. Contrast Mechanisms and Quantification in Magnetic Resonance Imaging (4)** (Same as Physics and Biology in Medicine M236.) Lecture, four hours. Requisite: Physics and Biology in Medicine M219. Introduction to magnetic resonance contrast mechanisms and quantification techniques in magnetic

resonance imaging. Topics include exogenous and endogenous contrast mechanisms, measuring tissue perfusion and permeability, advanced diffusion and q-space analysis, chemical exchange and magnetization transfer imaging, and relaxometry. Letter grading.

**C239A. Biomolecular Materials Science I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different types of interactions that exist between biomolecules, such as van der Waals interactions, entropically modulated electrostatic interactions, hydrophobic interactions, hydration and solvation interactions, polymer-mediated interactions, depletion interactions, molecular recognition, and others. Illustration of these ideas using examples from bioengineering and biomedical engineering. Students should be able to make simple calculations and estimates that allow them to engage broad spectrum of bioengineering problems, such as those in drug and gene delivery and tissue engineering. May be taken independently for credit. Concurrently scheduled with course C139A. Letter grading.

**C239B. Biomolecular Materials Science II (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Course C239A is not requisite to C239B. Overview of chemical and physical foundations of biomolecular materials science that concern materials aspects of molecular biology, cell biology, and bioengineering. Understanding of different basic types of biomolecules, with emphasis on nucleic acids, proteins, and lipids. Study of how biological and biomimetic systems organize into their functional forms via self-assembly and how these structures impart biological function. Illustration of these ideas using examples from bioengineering and biomedical engineering. Case study on current topics, including drug delivery, gene therapy, cancer therapeutics, emerging pathogens, and relation of self-assembly to disease states. May be taken independently for credit. Concurrently scheduled with course C139B. Letter grading.

**CM240. Introduction to Biomechanics (4)** (Same as Mechanical and Aerospace Engineering CM240.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mechanical and Aerospace Engineering 101, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM140. Letter grading.

**242. Biophotonics (4)** Lecture, four hours; outside study, eight hours. Introduction of principles and survey applications in field of biophotonics. Letter grading.

**CM245. Molecular Biotechnology for Engineers (4)** (Same as Chemical Engineering CM245.) Lecture, four hours; discussion, one hour; outside study, seven hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM145. Letter grading.

**C247. Applied Tissue Engineering: Clinical and Industrial Perspective (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course CM202, Chemistry 20A, 20B, 20L, Life Sciences 7A. Overview of central topics of tissue engineering, with focus on how to build artificial tissues into regulated clinically viable products. Topics include biomaterials selection, cell source, delivery methods, FDA approval processes, and physical/chemical and biological testing. Case studies include skin and artificial skin, bone and cartilage, blood vessels, neurotissue engineering, and liver, kidney, and other organs. Clinical and industrial perspectives of tissue engineering products. Manufacturing constraints, clinical limitations, and regulatory challenges in design and development of tissue-engineering devices. Concurrently scheduled with course C147. Letter grading.

**248. Introduction to Molecular Imaging (4)** (Same as Pharmacology M248 and Physics and Biology in Medicine M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of molecular imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

**250B. Microelectromechanical Systems (MEMS) Fabrication (4)** (Same as Electrical and Computer Engineering M250B and Mechanical and Aerospace Engineering M280B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course M153. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many litho-

graphic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

**252. Microelectromechanical Systems (MEMS) Device Physics and Design (4)** (Same as Electrical and Computer Engineering M252 and Mechanical and Aerospace Engineering M282.) Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

**C255. Fluid-Particle and Fluid-Structure Interactions in Microflows (4)** Lecture, four hours; laboratory, one hour; outside study, seven hours. Enforced requisite: course 110. Introduction to Navier/Stokes equations, assumptions, and simplifications. Analytical framework for calculating simple flows and numerical methods to solve and gain intuition for complex flows. Forces on particles in Stokes flow and finite-inertia flows. Flows induced around particles with and without finite inertia and implications for particle-particle interactions. Secondary flows induced by structures and particles in confined flows. Particle separations by fluid dynamic forces: field-flow fractionation, inertial focusing, structure-induced separations. Application concepts in internal biological flows and separations for biotechnology. Helps students become sufficiently fluent with fluid mechanics vocabulary and techniques, design and model microfluidic systems to manipulate fluids, cells, and particles, and develop strong intuition for how fluid and particles behave in arbitrarily structured microchannels over range of Reynolds numbers. Concurrently scheduled with course C155. Letter grading.

**256. Drug Delivery Devices: Innovation and Translation (4)** Lecture, four hours; outside study, eight hours. Introduction to modern topics in drug delivery devices and relevant biomedical applications. Topics provide comprehensive and critical examination of current and emerging research and development on drug delivery devices, with emphasis on innovation and translation. Topics include bioresponsive drug delivery systems, drug delivery reservoirs, MEMS and micro/nanorobots for drug delivery, nanomedicine-device combination products, and development and regulation of drug delivery devices. Students acquire theoretical and practical knowledge of drug delivery devices. Students gain ability to identify advanced approaches for drug delivery mediated by devices in effective and safe manner, from systemic administration to site-specific release; design appropriate mechanisms, materials, and structures for engineering drug delivery devices to deliver different therapeutics for treating variety of diseases; and propose methods and relevant experiments to validate efficacy of certain drug delivery devices. Letter grading.

**260. Neuroengineering (4)** (Same as Electrical and Computer Engineering M255 and Neuroscience M206.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 5C. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

**261A. Evaluation of Research Literature in Neuroengineering (2)** (Same as Electrical and Computer Engineering M256A and Neuroscience M212A.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**261B. Evaluation of Research Literature in Neuroengineering (2)** (Same as Electrical and Computer Engineering M256B and Neuroscience M212B.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**261C. Evaluation of Research Literature in Neuroengineering (2)** (Same as Electrical and Computer Engineering M256C and Neuroscience M212C.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**263. Anatomy of Central Nervous System (4)** (Same as Neuroscience M203.) Lecture, 75 minutes; discussion/laboratory, two hours. Prior to first laboratory meeting, students must complete Bloodborne Pathogens training course through UCLA Environment, Health and Safety. Study of anatomical locations of and relationships between ascending and descending sensory and motor systems from spinal cord to cerebral cortex. Covers cranial nerves and brainstem anatomy along with anatomy of ventricular and vascular systems of brain. Subcortical forebrain areas covered in detail. Integrated anatomy laboratory includes brain dissections and overview of tools for MRI analysis. Letter grading.

**C266. Wearable Bioelectronics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Practice of human health care may be on cusp of revolution, driven by unprecedented level of personalization enabled by advances in technology, specifically, transformation of wearable devices from curiosities that provide qualitative information for fitness enthusiasts to sophisticated systems that produce clinical-grade data for physicians. Introduction of cutting-edge research in field of wearable bioelectronics. Addresses fundamentals, materials, processes, and devices for wearable bioelectronics, showcasing key applications including device fabrication, manufacturing, and health-care applications. Concurrently scheduled with course C166. Letter grading.

**271. Biotechnology of Cellular Therapies (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Examination of how to design cells and cellular systems to perform therapeutic tasks in complex physiological environments. Discussion of immune system as case study of engineering functionality based on certain required specifications (e.g., not attacking self, recognition of pathogens, preventing cancer). Discussion also of methods and techniques used to genetically modify, separate, and analyze cells, which—just like in chemical synthesis and purification of drugs—are important to creating therapies with well-defined properties based on cells. Letter grading.

**273. Micro- and Nanoscale Biosensing for Molecular Diagnostics (4)** (Same as Electrical and Computer Engineering M275.) Lecture, four hours; discussion, one hour; outside study, seven hours. Covers state-of-art and emerging biosensors in context of molecular diagnostics. Students learn relevant biology and biochemistry pertinent to molecular diagnostics. Students gain thorough understanding of interfaces between bioparticles, biofluids, and electronics. Topics include biosensor performance parameters, modes of detection, sample preparation challenges, microfluidics, and emerging wearable biosensing platforms, as well as proteomics, genomics, and DNA sequencing technologies. Letter grading.

**275. Machine Learning and Data-Driven Modeling in Bioengineering (4)** (Formerly numbered C275.) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: Civil Engineering M20 or Mechanical and Aerospace Engineering M20 or Computer Science 31, Mathematics 32B, 33A. Overview of foundational data analysis and machine-learning methods in bioengineering, focusing on how these techniques can be applied to interpret experimental observations. Topics include probabilities, distributions, cross-validation, analysis of variance, reproducible computational workflows, dimensionality reduction, regression, hidden Markov models, and clustering. Students gain theoretical and practical knowledge of data analysis and machine-learning methods relevant to bioengineering. Application of these methods to experimental data from bioengineering studies. Students become sufficiently familiar with these techniques to design studies incorporating such analyses, execute analysis, and work in teams using similar approaches, and ensure correctness of their results. Letter grading.

**CM278. Introduction to Biomaterials (4)** (Same as Materials Science CM280.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 104. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM178. Letter grading.

**C279. Biomaterials-Tissue Interactions (4)** Lecture, three hours; outside study, nine hours. Requisite: course CM278. In-depth exploration of host cellular response to biomaterials: vascular response, interface, and clotting, biocompatibility, animal models, inflammation, infection, extracellular matrix, cell adhesion, and role of mechanical forces. Concurrently scheduled with course C179. Letter grading.

**281. Advanced Bioconjugate Design and Methods (4)** Lecture, four hours; outside study, eight hours. Requisite: course C205. Builds upon basic concepts of chemical ligation covered in course C205, and focuses on current state-of-art methods and designs for precise bioconjugate formation, especially in context of living cells. Focus on recently developed bioconjugate methods from primary literature, and their applications in bioengineering. Students gain deep understanding of principles of bioconjugation: coupling of biologically active molecules to substrates, devices, or one another, especially for applications in living cells and in vivo. Letter grading.

**282. Biomaterial Interfaces (4)** Lecture, four hours; laboratory, eight hours. Requisite: course CM178 or CM278. Function, utility, and biocompatibility of biomaterials depend critically on their surface and interfacial properties. Discussion of morphology and composition of biomaterials and nanoscales, mesoscales, and macroscales, techniques for characterizing structure and properties of biomaterial interfaces, and methods for designing and fabricating biomaterials with prescribed structure and properties in vitro and in vivo. Letter grading.

**C283. Targeted Drug Delivery and Controlled Drug Release (4)** Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemistry of materials and physical presentation of devices and compounds used in delivery and release. Concurrently scheduled with course C183. Letter grading.

**284. Functional Neuroimaging: Techniques and Applications (3)** (Same as Neuroscience M285, Physics and Biology in Medicine M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

**C285. Introduction to Tissue Engineering (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course CM102 or CM202, Chemistry 20A, 20B, 20L. Tissue engineering applies principles of biology and physical sciences with engineering approach to regenerate tissues and organs. Guiding principles for proper selection of three basic components for tissue engineering: cells, scaffolds, and molecular signals. Concurrently scheduled with course C185. Letter grading.

**CM286. Computational Systems Biology: Modeling and Simulation of Biological Systems (5)** (Same as Computer Science CM286.) Lecture, four hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 30A, 30B, Mathematics 32A or M32T, 33A, and 33B; or Mathematics 31A, 31B, 32A or M32T, 33A, and 33B. Dynamic biosystem modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Intermediate linear and nonlinear control system, multicompartamental, epidemiological, pharmacokinetic, and other biomodeling methods applied to life sciences problems at molecular, cellular, organ, and population levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into dynamical mathematical models, and implementing them for simulation, quantification, and analysis. Numerical simulation, optimization, and parameter identifiability and search algorithms, with model discrimination and analysis and software exercises in PC laboratory assignments. Concurrently scheduled with course CM186. Letter grading.

**CM287. Research Communication in Computational and Systems Biology (4)** (Same as Computer Science CM287.) Lecture, four hours; outside study, eight hours. Requisites: course M182 or CM286 or Computational and Systems Biology M150; and research experience (course 199, Computational and Systems Biology 199, Computer Science 199, or equivalent). Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM187. Letter grading.

**295A. Seminar: Research Topics in Bioengineering—Biomaterial Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295B. Seminar: Research Topics in Bioengineering—Biomaterials and Tissue Engineering Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295C. Seminar: Research Topics in Bioengineering—Minimally Invasive and Laser Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295D. Seminar: Research Topics in Bioengineering—Hybrid Device Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295E. Seminar: Research Topics in Bioengineering—Molecular Cell Bioengineering Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295F. Seminar: Research Topics in Bioengineering—Biopolymer Materials and Chemistry (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295G. Seminar: Research Topics in Bioengineering—Biomicrofluidics and Biophotonics Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295H. Seminar: Research Topics in Bioengineering—Biomimetic System Research (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295J. Seminar: Research Topics in Bioengineering—Neural Tissue Engineering and Regenerative Medicine (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295K. Seminar: Research Topics in Bioengineering—Research in Synthetic Immunology and Microbiology (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295L. Seminar: Research Topics in Bioengineering—Cell and Tissue Engineering (2)** Seminar, one to four hours; outside study, two to five hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in cell engineering, mechanobiology, immunoengineering, and regenerative medicine. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295M. Seminar: Research Topics in Bioengineering—Research in Biological Systems Engineering (2)** Seminar, two hours; outside study, four hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in systems biology, immune engineering, computational analysis of cell signaling, machine learning, quantitative molecular biology. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295N. Seminar: Research Topics in Bioengineering—Research in Biophotonics (2)** Seminar, one to four hours; outside study, two to five hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in biophotonics, medical imaging, and computational imaging. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295O. Seminar: Research Topics in Bioengineering—Research in Modeling of Drug Effects (2)** Seminar, one to four hours; outside study, two to five hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in protein-protein interaction network modeling, clinical estimation of drug effects, drug repurposing, and drug pathways. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**295P. Seminar: Research Topics in Bioengineering—Research in Wearable Bioelectronics for Personalized Health Care (2)** Seminar, one to four hours; outside study, two to five hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in biomedical instrumentations. Discussion of current research and literature in biomaterials synthesis,

biosensors and bioelectronics fabrications, circuitry and signal processing. Student presentation of projects every week in research specialty. May be repeated for credit. S/U grading.

**295Q. Seminar: Research Topics in Bioengineering—Biomolecular Engineering and Microbial Biosensing Research (2)** Seminar, one to four hours; outside study, two to five hours. Limited to bioengineering graduate students. Advanced study and analysis of current topics in bioengineering. Discussion of current research and literature in molecular and cellular engineering, glycoengineering, genetic engineering, biosensor development and transcriptional signaling. Student presentation of projects in research specialty. May be repeated for credit. S/U grading.

**296A. Advanced Modeling Methodology for Dynamic Biomedical Systems (4)** (Same as Computer Science M296A and Medicine M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

**296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems (4)** (Same as Biomathematics M270, Computer Science M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course CM286 or M296A or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

**296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing (4)** (Same as Computer Science M296C and Medicine M270E.) Lecture, four hours; outside study, eight hours. Requisite: course M296B. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual MS- and PhD-level project training. Letter grading.

**296D. Introduction to Computational Cardiology (4)** (Same as Computer Science M296D.) Lecture, four hours; outside study, eight hours. Requisite: course CM186. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in one-dimensional and two-dimensional cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

**298. Special Studies in Bioengineering (4)** Lecture, four hours; outside study, eight hours. Study of selected topics in bioengineering taught by resident and visiting faculty members. May be repeated for credit. Letter grading.

**299. Seminar: Bioengineering Topics (2)** Seminar, two hours; outside study, four hours. Designed for graduate bioengineering students. Seminar by leading academic and industrial bioengineers from UCLA, other universities, and bioengineering companies such as Baxter, Amgen, Medtronic, and Guidant on development and application of recent technological advances in discipline. Exploration of cutting-edge developments and challenges in wound healing models, stem cell biology, angiogenesis, signal transduction, gene therapy, cDNA microarray technology, bioartificial cultivation, nano- and micro-hybrid devices, scaffold engineering, and bioinformatics. S/U grading.

**495. Teaching Assistant Training Seminar (2)** Seminar, two hours; outside study, four hours. Limited to graduate bioengineering students. Required of all departmental teaching assistants. May be taken concurrently while holding TA appointment. Seminar on communicating bioengineering and biomedical engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids, grading, advising, and rapport with students. S/U grading.

**596. Directed Individual or Tutorial Studies. (2 to 8)** Tutorial, to be arranged. Limited to graduate bioengineering students. Petition forms to request enrollment may be obtained from program office. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination. (2 to 12)** Tutorial, to be arranged. Limited to graduate bioengineering students. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examination. (2 to 16)** Tutorial, to be arranged. Limited to graduate bioengineering students. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination. (2 to 16)** Tutorial, to be arranged. Limited to graduate bioengineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis. (2 to 12)** Tutorial, to be arranged. Limited to graduate bioengineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 16)** Tutorial, to be arranged. Limited to graduate bioengineering students. Usually taken after students have been advanced to candidacy. S/U grading.

# Bioinformatics

## Bioinformatics, Graduate Courses

### Graduate

**201. Seminar: Advanced Methods in Computational Biology (2)** Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

**202. Bioinformatics Interdisciplinary Research Seminar (4)** Seminar, two hours; discussion, two hours. Concrete examples of how biological questions about genomics data map to and are solved by methodologies from other disciplines, including statistics, computer science, and mathematics. May be repeated for credit. S/U or letter grading.

**223. Statistical Methods in Computational Biology (4)** (Same as Biomathematics M271 and Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course M221 or Statistics 100A or 200A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

**229. Current Topics in Bioinformatics (4)** Lecture, four hours. Introduction of active research topics in bioinformatics. Topics vary by instructor research area and include statistical genomics, epigenomics, single-cell analysis, metagenomics, and diagnostic informatics. Overview of research area and associated biological and technological background. Discussion of representative problems and presentation of their computational modeling and solutions. Students gain overview of current topics in bioinformatics and learn how to model and solve biological problems with computational methods. Letter grading.

**275A. Applied Bioinformatics Lab for Biologists: Fundamentals (2)** Laboratory, six hours (five weeks). Introduction to contemporary methods and techniques in bioinformatics that are used to analyze high-throughput genomic data. Topics include introduction to UNIX, Next Generation Sequence (NGS) data analysis, ChIP-seq, BS-seq and RNA-seq, and others. Letter grading.

**275B. Applied Bioinformatics Lab for Biologists: Intermediate (2)** Laboratory, six hours (five weeks). Requisite: course 275A. Contemporary methods and techniques in bioinformatics that are used to analyze high-throughput genomic data. Topics include Galaxy server, R, MATLAB, Python, and variant calling. Letter grading.

**296. Seminar: Research Topics in Bioinformatics (2)** Seminar, to be arranged; discussion, three hours. Advanced study and analysis of current research topics in bioinformatics. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research in Bioinformatics. (2 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**598. MS Thesis Research and Writing. (2 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**599. PhD Dissertation Research and Writing. (2 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

# Biological Chemistry

## Biological Chemistry Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M140. Cancer Cell Biology (5)** (Same as Molecular, Cell, and Developmental Biology M140.) Lecture, three hours; discussion, one hour. Prerequisite: Molecular, Cell, and Developmental Biology 165A. Cancer causes and genetics. Effects of cell transformation on cell growth and metabolism. Altered cell cycle, metabolism, and differentiation pathways in cancer cells. Tumor microenvironment contributions to cancer malignancy, including angiogenesis, metastasis, and immune system evasion. Letter grading.

**194. Research Group Seminars: Biological Chemistry (2)** Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

**199. Directed Research or Senior Project in Biological Chemistry. (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

### Graduate

**201A. Biological Chemistry (5)** Lecture, five hours. Preparation: organic chemistry. Open to nonmedical students with consent of instructor. Primarily for first-year medical students and runs throughout School of Medicine's second semester. General biochemistry with emphasis on mammalian systems. Structure, function, and metabolism of major cellular components. To receive credit, both courses must be taken together in same academic year. In Progress grading (credit to be given only on completion of course 201B).

**201B. Biological Chemistry (5)** Lecture, five hours. Preparation: organic chemistry. Open to nonmedical students with consent of instructor. Primarily for first-year medical students and runs throughout School of Medicine's second semester. General biochemistry with emphasis on mammalian systems. Structure, function, and metabolism of major cellular components. To receive credit, both courses must be taken together in same academic year. S/U grading.

**202. Advanced Topics in Cryogenic Electron Microscopy (3)** (Formerly numbered 202.) (Same as Molecular Biology M202.) Lecture, two hours; discussion, one hour. Students master advanced topics in membrane protein biology, and learn both theory and practice of cryogenic electron microscopy (cryo-EM) as emerging technology in structural biology. Cryo-EM methodologies covered include cryotomography, single particle reconstruction, electron crystallography, and microcrystal electron diffraction. Letter grading.

**204. Human Biological Chemistry and Nutrition Laboratory (3)** Laboratory, four hours. Open to nonmedical students with consent of instructor. Experiments illustrating techniques and procedures in medically related biochemistry and nutrition, analysis of experimental results. S/U or letter grading.

**205. Biological Chemistry and Nutrition Lecture: Dental Students (6)** Lecture, six hours; computer laboratory. Designed for dental students. Biochemical and genetic factors influencing normal and disease states: structure and metabolism of cellular constituents, intermediary metabolism and its regulation, endocrine and neurobiochemical mechanisms, connective tissue/mineralization. Includes computer laboratory and self-instruction on dietary assessment in dentistry. S/U or letter grading.

**220A. Research Laboratory Rotations. (2 to 8)** Laboratory, two to eight hours. Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates informed decision on their part in selection of thesis/research adviser. S/U grading.

**220B. Research Laboratory Rotations. (2 to 8)** Laboratory, two to eight hours. Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates informed decision on their part in selection of thesis/research adviser. S/U grading.

**220C. Research Laboratory Rotations. (2 to 8)** Laboratory, two to eight hours. Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates informed decision on their part in selection of thesis/research adviser. S/U grading.

**234. Genetic Control of Development (4)** (Same as Molecular, Cell, and Developmental Biology M234.) Lecture, four hours. Topics at forefront of molecular developmental biology, including problems in oogenesis and early embryogenesis, pattern formation, axis determination, nervous system development, cellular morphogenesis, and cell-cell and cell-matrix interactions. S/U or letter grading.

**237. Cellular and Molecular Basis of Disease (4)** (Same as Pathology M237.) Lecture, two hours; laboratory, two hours. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Discussion of key issues in disease mechanisms, with emphasis on experiments leading to understanding of these mechanisms. Identification of important questions still remaining unanswered. Letter grading.

**248. Tumor Cell Biology (2)** Seminar, one hour per month. Limited to students selected for one of following National Institutes of Health (NIH) training programs: tumor cell biology, tumor immunology, and training in immuno-targeted therapy for cancer. Formal presentation of research to other class members and faculty. Questions are asked during and after each presentation. Faculty provide each speaker with feedback on effectiveness of presentation. S/U grading.

**251A. Seminar: Transcriptional Regulation (2)** Seminar, two hours. Advanced course on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U grading.

**251B. Seminar: Transcriptional Regulation (2)** Seminar, two hours. Advanced course on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U grading.

**251C. Seminar: Transcriptional Regulation (2)** Seminar, two hours. Advanced course on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U grading.

**255. Mitochondria in Medicine, Biology, and Chemistry (1)** (Same as Chemistry CM255.) Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. May be repeated for credit. S/U grading.

**259. Mechanisms of Gene Regulation (4)** (Same as Chemistry CM259.) Lecture, four hours. Prerequisite: Chemistry 153B. RNA polymerase structures and mechanisms; promoter recognition and transcription cycle; mechanisms of activation; transcriptional poising and elongation control; Mediator of transcription; chromatin remodeling and modification; epigenetic regulation; cotranscriptional and transcription-coupled RNA processing; impact of transcription on mRNA processing and stability; nuclear export of mRNA. S/U or letter grading.

**266A. Seminar: Cell, Stem Cell, and Developmental Biology (2)** Seminar, two hours. Open to undergraduate students with consent of instructor. Advanced course in cell, stem cell, and developmental biology intended for graduate students working or rotating in laboratories of new cell and developmental biology home area. S/U grading.



**266B. Seminar: Cell, Stem Cell, and Developmental Biology (2)** Seminar, two hours. Open to undergraduate students with consent of instructor. Advanced course in cell, stem cell, and developmental biology intended for graduate students working or rotating in laboratories of new cell and developmental biology home area. S/U grading.

**266C. Seminar: Cell, Stem Cell, and Developmental Biology (2)** Seminar, two hours. Open to undergraduate students with consent of instructor. Advanced course in cell, stem cell, and developmental biology intended for graduate students working or rotating in laboratories of new cell and developmental biology home area. S/U grading.

**296. Research Seminar Series in Biological Chemistry (1)** Seminar, one hour. Limited to biological chemistry students. Research presentations from second- through fourth-year graduate students related to their research. Designed to be highly interactive, with time for questions from fellow graduate students, postdoctoral students, and faculty members during and after presentations. May be repeated for credit. S/U grading.

**596. Directed Individual Study and Research. (2 to 12)** Tutorial, to be arranged. S/U or letter grading.

**597. Preparation for Examinations. (2 to 4)** Tutorial, to be arranged. Individual study for PhD qualifying examinations or MS comprehensive examination. S/U grading.

**598. Preparation of MS Thesis (4)** Tutorial, to be arranged. Preparation of research data and writing of MS thesis. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 12)** Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. S/U grading.

# Biomedical Research

## Biomedical Research Courses

### Lower Division

**1A. Science in Your Time (5)** Lecture, three hours; discussion, one hour. Exploration of current topics in biology from media sources like news organizations and TED Talks, tracing information back to primary research. Students learn to critically evaluate primary sources. Discussion of bias in system producing primary research from undergraduate education through tenured faculty, and medicine and national science funding (National Institutes of Health and National Science Foundation). Addresses lack of Black and Latinx representation and its impact on science valued by current system. Letter grading.

**5HA. Biomedical Research: Concepts and Strategies (4)** Lecture, three hours. Designed for freshmen/sophomores. Exploration of scientific concepts and experimental approaches through seminars by UCLA faculty members on their cutting-edge research. Topics may include areas of study such as cancer, stem cells, and infectious disease, as well as more basic research in cell and molecular biology. Letter grading.

**5HB. Biomedical Research: Essential Skills and Concepts (4)** Lecture, three hours; discussion, one hour. Requisite: course 5HA. Designed for freshmen/sophomores. Exploration of scientific concepts and experimental approaches through seminars by UCLA faculty members on their cutting-edge research. Topics may include areas of study such as cancer, stem cells, and infectious disease, as well as more basic research in cell and molecular biology. Student investigation of one or more laboratories on campus and presentation of brief synopsis of single research project from one laboratory. Letter grading.

**10H. Research Training in Genes, Genetics, and Genomics (6)** Lecture, 90 minutes; laboratory, six hours; computer laboratory, 90 minutes. Limited to 30 students. Basic training in biological research, including techniques in genetics, model organism, bioinformatics, functional genomics, electron microscopy. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100HA. Advanced Research in Genes, Genetics, and Genomics (4)** Lecture, two hours; laboratory, 10 hours. Requisite: course 10H. Course 100HA is requisite to 100HB, which is requisite to 100HC. Designed for undergraduates who are committed to pursuing research. Advanced research training in genetics, cell and developmental biology, bioinformatics, functional genomics. Techniques include electron microscopy, other light microscopies, immunohistochemistry. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

**100HB. Advanced Research in Genes, Genetics, and Genomics (4)** Lecture, two hours; laboratory, 10 hours. Requisite: course 100HA. Designed for undergraduates who are committed to pursuing research. Advanced research training in genetics, cell and developmental biology, bioinformatics, functional

genomics. Techniques include electron microscopy, other light microscopies, immunohistochemistry. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

**100HC. Advanced Research in Genes, Genetics, and Genomics (4)** Lecture, two hours; laboratory, 10 hours. Requisite: course 100HB. Designed for undergraduates who are committed to pursuing research. Advanced research training in genetics, cell and developmental biology, bioinformatics, functional genomics. Techniques include electron microscopy, other light microscopies, immunohistochemistry. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**193H. Journal Club Seminars: Current Topics in Biomedical Research (2)** Seminar, three hours. Limited to Biomedical Research minor students. Presentation and discussion of recent papers from primary literature in biosciences. Letter grading.

**194H. Research Group Seminars: Data Presentation in Biomedical Research (2)** Seminar, three hours. Requisite: course 193H. Limited to Biomedical Research minor students. Preparation of oral presentations based on student laboratory research at UCLA. May be repeated for credit. Letter grading.

**199. Directed Biomedical Research (4)** Tutorial, 12 hours. Limited to Biomedical Research minor students. Supervised individual research under guidance of faculty mentor. Culminating report describing progress and signed by student and faculty mentor required. May be repeated for credit. Individual contract required. Letter grading.

# Biostatistics

## Biostatistics Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Introduction to Biostatistics (4)** (Formerly numbered 100A.) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: one biological or physical sciences course. Suitable for juniors/seniors. Limited to nonmajors. Not open for credit to students with credit for course 120. Students who have completed courses in statistics may enroll only with consent of instructor. Introduction to methods and concepts of statistical analysis. Sampling situations, with special attention to those occurring in biological sciences. Topics include distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size. P/NP or letter grading.

**120. Biostatistics in Public Health (5)** Lecture, three hours; discussion, one hour. Limited to Public Health majors. Not open for credit to students with credit for course 100A. Introduction to basic concepts in biostatistical analysis, presentation of data, and biostatistical aspects of design of public health studies. Special emphasis on application of biostatistical concepts to public health issues. Interpretation and communication of biostatistical findings is stressed. Focus on concepts and applications rather than mathematical theory. Letter grading.

**121. Biostatistics in Public Health (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 100 or 120. Introduction to analysis of variance, linear regression, and correlation analysis. P/NP or letter grading.

### Graduate

**200A. Methods in Biostatistics A (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. First course in biostatistical methods intended for graduate students in biostatistics to prepare students pursuing careers as practicing biostatisticians. Prior knowledge of probability or statistics not assumed. Students should have working knowledge of calculus and be very comfortable with mathematical and algebraic reasoning. Introduction to basic concepts in analysis, presentation of data, and statistical aspects of design of studies. Special emphasis is given to application of statistical methods to public health, medical, biological, and health sciences. Interpretation and communication of statistical findings is stressed. Focus on methodology, applications, and concepts rather than mathematical statistics or probability theory. S/U or letter grading.

**200B. Methods in Biostatistics B (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: linear algebra. Requisite: course 200A. Designed for students pursuing graduate degrees in biostatistics. Theory and practice of linear regression analysis and analysis of variance (ANOVA). S/U or letter grading.

**200C. Methods in Biostatistics C (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preferred preparation: courses 200A, 200B, and previous coursework in linear algebra. Designed for students pursuing graduate degrees in biostatistics. Generalized linear models, description, and analysis of discrete data with applications to public health. Students are trained to identify different types of discrete data; use statistical software package STATA to manage, summarize, and analyze data; use appropriate statistical techniques for analyzing public health data using generalized linear models; apply generalized estimating equations for analyzing longitudinal data; and write formal statistical report of data analysis for public health researcher. S/U or letter grading.

**201A. Introduction to Biostatistics (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: one biological or physical sciences course. Students who have completed courses in statistics may enroll only with consent of instructor. Introduction to methods and concepts of statistical analysis. Sampling situations, with special attention to those occurring in biological sciences. Topics include distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size. S/U or letter grading.

**201B. Introduction to Biostatistics (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 201A. Introduction to analysis of variance, linear regression, and correlation analysis. S/U or letter grading.

**202A. Mathematical Statistics A (4)** Lecture, three hours; discussion, one hour. Designed primarily for students pursuing DrPh, MS, and PhD degrees in biostatistics. Introduction to main principles of probability, random variables, discrete and continuous distributions, multivariate distributions, and distributions of functions of random variables. S/U or letter grading.

**202B. Mathematical Statistics B (4)** Lecture, three hours; discussion, one hour. Requisite: course 202A. Designed primarily for students pursuing DrPh, MS, and PhD degrees in biostatistics. Introduction to main principles of probability, random variables, discrete and continuous distributions, multivariate distributions, and distributions of functions of random variables. S/U or letter grading.

**202C. Theory of Bayesian Statistics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 202A, 202B, or equivalent, or consent of instructor. Mathematical underpinnings of Bayesian approach to statistical inference; closed form computations; computation; hierarchical models; model selection; hypothesis testing; prior specification; comparative inference; nonparametric methods. S/U or letter grading.

**203A. Introduction to Data Management and Statistical Computing (4)** Lecture, three hours; laboratory, two hours. Prior knowledge of programming not assumed. Coverage of mechanics of converting data from whatever form it may arrive and preparing it for processing by statistical software. Letter grading.

**203B. Introduction to Data Science in R (4)** Lecture, three hours; discussion, one hour. Requisite: course 203A. Students gain computing skills and software tools for handling potentially big public health data using computer language R. S/U or letter grading.

**203C. Introduction to Data Science in Python (4)** Lecture, three hours; discussion, one hour. Requisites: courses 203A, 203B, 212A. Introduction to data science tools in Python. Topics include Python programming, Jupyter Notebook for literate programming, NumPy and SciPy for scientific computing, pandas for data analysis and manipulation, Matplotlib and other libraries for data visualization, scikit-learn for machine learning, and deep learning libraries. S/U or letter grading.

**208. Introduction to Demographic Methods (4)** (Same as Community Health Sciences M208, Economics M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

**210. Statistical Methods for Categorical Data (4)** Lecture, three hours; discussion, one hour. Requisites: course 100B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

**211A. Topics in Applied Regression (4)** (Formerly numbered 201A.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: course 100, or 200A and 200B. Designed for master's and doctoral students in fields outside biostatistics. Topics in linear regression and other related methods. When and how to use linear regression and related methods and how to properly interpret results. Heavy emphasis on practical application as opposed to theoretical development. S/U or letter grading.

**211B. Topics in Applied Regression (4)** (Formerly numbered 201B.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 211A. Further studies in multiple linear regression, including applied multiple regression models, regression diagnostics and model assessment, factorial and repeated measure analysis of variance models, nonlinear regression, logistic regression, propensity scores, matching versus stratification, Poisson regression, and classification trees. Applications to biomedical and public health scientific problems. Letter grading.

**212A. Statistical Learning A (4)** (Formerly numbered 212.) Lecture, three hours; discussion, one hour. Requisite: course 100A. Elements of statistical learning. Topics include linear regression, classification (logistic regression,

discriminant analysis), resampling methods (cross-validation, bootstrap), model selection (subset, stepwise) and regularization (ridge, lasso). Letter grading.

**212B. Statistical Learning B (4)** Lecture, three hours; discussion, one hour. Requisites: courses 100A, 212A. Elements of statistical learning. Topics include nonlinear regression, regression trees, support vector machines, unsupervised learning, and deep learning. Letter grading.

**213. Introduction to Computational Methods in Biostatistics (4)** Lecture, three hours; discussion, one hour. Requisites: course 200B or Statistics 100B. Introduction to computational methods for biostatistical inference: simulation techniques, numerical integration, numerical optimization. S/U or letter grading.

**214. Finite Population Sampling (4)** Lecture, three hours. Requisites: courses 200A, 200B, 202B. Theory and methods for sampling finite populations and estimating population characteristics. S/U or letter grading.

**215. Survival Analysis (4)** (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Requisite: course 202B or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

**216. Mathematical Methods for Biostatistics (4)** Lecture, four hours. Requisites: Mathematics 31A, 31B, 33A. Designed and required for incoming first-year MS and PhD students. Introduction to specialized topics in advanced calculus, linear algebra, and scientific computing that are pertinent for subsequent courses in MS and PhD Biostatistic curriculum. Offers more in-depth understanding of mathematical rigor used in subsequent required courses such as Biostatistics 200B, 200C, 202A, 202B, and 202C. Emphasis on interplay between mathematical methods and scientific computing within R statistics computing environment. Offers detailed training on numerical algorithms used in linear algebra and probabilistic simulations commonly used by statisticians. Examination of several of the most common R functions used in statistical modeling such as regression analysis and random effects models. S/U or letter grading.

**219. Special Topics: Supplemental Topics (4)** Lecture, three hours; discussion, one hour. Requisite: course 202B. Topics in biostatistics not covered in other courses. Letter grading.

**230. Statistical Graphics (4)** Lecture, three hours; laboratory, one hour. Requisite: course 200A (may be taken concurrently). Graphical data analysis emphasizes use of visual displays of quantitative data to gain insight into data structure by exploring patterns and relationships, and to enhance classical numerical analyses, especially assumption validity checking. Principles of graph construction, graphical methods, and perception issues. S/U or letter grading.

**231. Statistical Power and Sample Size Methods for Health Research (4)** Lecture, three hours; laboratory, one hour. Requisites: courses 200A, 200B. Strongly recommended: variety of other graduate coursework. Sample size and power analysis methods for common study designs, including comparisons of means and proportions, ANOVA, time-to-event data, group sequential trials, linear regression, cluster randomized trials and multilevel data, with emphasis on designing randomized trials. Discussion also of multiple endpoints. S/U or letter grading.

**232. Statistical Analysis of Incomplete Data (4)** (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Requisites: courses 200C, 202B or equivalent. Sources of incomplete data, recognizing familiar methods as solutions to missing-data problems, missing-data mechanisms, weighting and imputation strategies, model-based and design-based inference, likelihood-based and Bayesian methods, statistical computing strategies, multivariate models for diverse data types, nonignorable models, review of available statistical software. Emphasis on incorporating incomplete-data perspective into broader statistical-science framework. S/U or letter grading.

**233. Statistical Issues in Global Health (4)** Lecture, three hours. Requisite: course 200C. Recommended requisite or corequisite: course M215. Consideration of statistical issues in addressing contemporary global health challenges. Topics include statistical methods for analyzing public health surveillance data, methods and models for measuring and forecasting health of populations, epidemic modeling, agent-based modeling, evaluating and addressing sampling issues in public health data, and design and analysis of large-scale public health interventions such as vaccine trials and cancer screening programs. Applications to both infectious and noninfectious diseases. Case studies include HIV/AIDS, cancer, pandemic flu, and topical global health challenges such as recent outbreaks of emerging pathogens. S/U or letter grading.

**234. Applied Bayesian Inference (4)** (Same as Biomathematics M234.) Lecture, three hours; laboratory, one hour. Requisite: course 200B or another substantial regression course. Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical

theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

**235. Causal Inference (4)** (Same as Psychiatry M232.) Lecture, three hours; discussion, one hour. Requisites: courses 200C, 202B, or equivalent. Philosophical foundations, logical paradoxes, decision analysis, selection bias, confounding, ecological paradox, historical development, potential outcomes, Rubin causal model, propensity scores, competing perspectives on path analysis and graphical/structural-equation models, experiments with noncompliance, principal stratification, decision making when causality is disputed, role of ethics in decision making. S/U or letter grading.

**236. Longitudinal Data (4)** (Same as Biomathematics M282.) Lecture, three hours; laboratory, one hour. Requisite: course 200B or another substantial regression course. Analysis of continuous responses for which multivariate normal model may be assumed. Students learn how to think about longitudinal data, plot data, and how to specify mean and variance of longitudinal response. Advanced topics include introductions to clustered, multivariate, and discrete longitudinal data. S/U or letter grading.

**237. Applied Genetic Modeling (4)** (Same as Biomathematics M207B and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: courses 200B, 202B (may be taken concurrently) or equivalent coursework or consent of instructor. Covers basic genetic concepts (prior knowledge of human genetics not required). Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M272; students may take either and are encouraged to take both. S/U or letter grading.

**238. Methodology of Clinical Trials (4)** (Same as Biomathematics M284.) Lecture, three hours; discussion, one hour. Requisite: course 200B. Introductory material on design and analysis of clinical trials, including adaptive methods for early and late randomized trials. S/U or letter grading.

**239. Mathematical and Statistical Phylogenetics (4)** (Same as Biomathematics M211 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Preparation: undergraduate course in statistics and probability. Theoretical models in molecular evolution focusing on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography and coalescent approaches. Examples provided from evolutionary biology and evolutionary medicine, with unique focus on implications for human disease processes. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

**241. Spatial Modeling and Data Analysis for Health Sciences (4)** Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 202A, 202B. Introduction of various methods for exploring, modeling, and analyzing spatially referenced datasets, with emphasis on environmental/natural sciences and public health. Statistical theory and foundations for carrying out principled and scientifically rigorous inference on spatially referenced datasets and computational methods and algorithms for executing statistical modeling in practice. Practical examples and applications demonstrated using open-source statistical software environment R and datasets from diverse fields, such as public health, environmental health, natural sciences, and economics. Letter grading.

**244. Master's Seminar and Research Resources for Graduating Biostatistics MS Students (4)** Seminar, three hours. Introduction to resources for finding statistical literature. Discussion of principles of making statistical presentations and how to write statistical reports, including writing abstracts and choice of key words. Discussion of journal article preparation and submission format and refereeing process to help students make progress on their master's reports. Letter grading.

**245. Advanced Seminar: Biostatistics (2)** Seminar, two hours. Requisites: courses 200C, 202B. Current research in biostatistics. May be repeated for credit. S/U grading.

**246. Doctoral Students Seminar (2)** Seminar, two hours. Requisites: courses 200C, 202B. Limited to Biostatistics majors. Biostatistics doctoral seminar, with presentations given by students on current research topics in biostatistics and feedback provided by instructor and peers. S/U grading.

**250A. Linear Statistical Models (4)** Lecture, three hours; discussion, one hour. Recommended preparation: statistical theory and linear algebra. Designed for students pursuing graduate degrees in biostatistics. Theoretical foundation for linear models with applications to different types of problems in biomedical field. Emphasis on mathematical training and understanding of theory and applications of linear models. Letter grading.

**250B. Linear Statistical Models (4)** Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 200C, 250A. Theoretical foundation for linear models with applications to different types of problems in biomedical field.

Emphasis on mathematical training and understanding of theory of linear models, including linear mixed models and topics that may include theory and tests for various types of model misspecification, such as heteroscedasticity and outliers. Other selected topics may include ridge regression, Bayesian estimation in linear models, REML, prediction, and model selection issues. Some data analysis, instructions for STATA provided. Letter grading.

**250C. Multivariate Biostatistics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 250A, 250B. Recommended requisites: courses 255A, 255B. Theory and methods for multivariate analysis with non-exclusive focus on biomedical applications. Topics from multivariate linear models, graphical models, component analysis, factor analysis, clustering, discriminant analysis, models for longitudinal and clustered data. S/U or letter grading.

**255A. Advanced Probability and Statistics (4)** Lecture, three hours; discussion, one hour. Requisites: course 202A or equivalent, Mathematics 131A or consent of instructor. Survey of probability theory, with special emphasis on applications to biostatistics. Topics include probability spaces and random variables, generating functions, conditioning, discrete-time martingales, applications to finite sample analysis of statistical procedures. S/U or letter grading.

**255B. Advanced Probability and Statistics (4)** Lecture, three hours; discussion, one hour. Requisites: course 255A or consent of instructor, Mathematics 131A. Survey of advanced topics in probability and mathematical statistics, with special emphasis on applications to biostatistics. Topics include laws of large numbers, central limit theorems, basic concepts from stochastic processes, and applications to large sample theory in biostatistics. S/U or letter grading.

**257. Computational Methods for Biostatistical Research (4)** (Formerly numbered 257.) (Same as Biomathematics M257.) Lecture, three hours; discussion, one hour. Requisites: course 250A or Statistics 100C, Mathematics 115A. Preparation for quantitative research in statistics and data sciences. Numerical analysis and hands-on computing techniques for handling big data. Numerical analysis topics include computer arithmetic, solving linear equations, Cholesky factorization, QR factorization, regression computations, eigenvalue problems, iterative solvers, numerical optimization, and design and analysis of statistical simulation experiments. Computing techniques include basics of R programming, reproducible research using R and RStudio, collaborative research, parallel computing, and cloud computing. No prior knowledge of R assumed. S/U or letter grading.

**270. Stochastic Processes (4)** Lecture, three hours; discussion, one hour. Requisites: course 202B or Mathematics 170B; Mathematics 131A. Recommended requisite: course 255A. Overview of common stochastic process models arising in biostatistical applications. Topics include discrete and continuous time martingales, discrete and continuous time Markov chains, renewal processes and diffusion processes. S/U or letter grading.

**272. Theoretical Genetic Modeling (4)** (Same as Biomathematics M207A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

**273. Machine Learning (4)** Lecture, three hours. Requisites: course 200C and Mathematics 115A. Covers theoretical underpinnings and practical applications of modern machine-learning and other data-intensive algorithms, including support vector machines and random forest algorithms. Students learn to download and use variety of software tools that are available for free on web. S/U or letter grading.

**274. Topics in Statistical Machine Learning (4)** Lecture, four hours. Requisites: courses 200A, 200B. Designed for PhD students. Topics in machine learning with focus on both statistics and applications. Letter grading.

**275. Advanced Survival Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 250A, 255. Time-to-event data arise in many fields, such as medicine, reliability theory, demography, sociology, economics, and astronomy. Overview of common stochastic process models and methods for analysis of such data. Examples include continuous-time Markov chain and semi-Markov models, and frailty and copula models. S/U or letter grading.

**276. Inferential Techniques that Use Simulation (4)** Lecture, three hours; discussion, one hour. Requisites: Statistics 200A, 200B. Recommended: course 213. Theory and application of recently developed techniques for statistical inference that use computer simulation. Topics include bootstrap, multiple imputation, data augmentation, stochastic relaxation, and sampling/importance resampling algorithm. S/U or letter grading.

**277. Robustness and Modern Nonparametrics (4)** Lecture, three hours. Requisite: Statistics 200A. Topics include M-estimation, influence curves, breakdown point, bootstrap, jackknife, smoothing, nonparametric regression, generalized additive models, density estimation. S/U or letter grading.

**279. Optimal Design Theory and Application (4)** Lecture, three hours. Preparation: basic programming skills. Requisite: Statistics 200B. Presentation of design methodology for regression problems, with applications to biostatistical problems. Letter grading.

**280. Statistical Computing (4)** (Same as Biomathematics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics 100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

**285. Advanced Topics: Recent Developments (4)** Lecture, three hours; discussion, one hour. Advanced topics and developments in biostatistics not covered in Biostatistics M210 through 219 or 270 through 276 or in other courses. Possible topics include time-series analysis, classification procedures, correspondence analysis, etc. S/U or letter grading.

**296. Seminar: Research Topics in Biostatistics. (1 to 4)** Seminar, two hours. Advanced study and analysis of current topics in biostatistics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**400. Field Studies in Biostatistics (4)** Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

**402A. Principles of Biostatistical Consulting (2)** Lecture, one hour; discussion, one hour. Requisites: courses 100B or 200B, and 200A. Presentation of structural format for statistical consulting. Role of statistician and client. Reviews of actual statistician/client interactions and case studies. S/U or letter grading.

**402B. Biostatistical Consulting (4)** Discussion, two hours; laboratory, two hours. Requisite: course 402A. Principles and practices of biostatistical consulting. May be repeated for credit. S/U grading.

**403B. Computer Management and Analysis of Health Data Using SAS (4)** (Same as Epidemiology M403.) Lecture, two hours; laboratory, two hours. Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading.

**406. Applied Multivariate Biostatistics (4)** Lecture, three hours; laboratory, one hour. Preparation: at least two upper-division research courses. Requisite: course 100B. Use of multiple regression, principal components, factor analysis, discriminant function analysis, logistic regression, and canonical correlation in biomedical data analysis. S/U (optional only for nondivision majors) or letter grading.

**409. Doctoral Statistical Consulting Seminar (2)** Seminar, one hour; laboratory, four hours. Designed for doctoral students. Development of experience and expertise in collaborating with faculty in Schools of Public Health and Medicine. Students meet with investigators and develop design and protocol for data analysis, implement data protocol when data is obtained, and write up study with lead investigators. S/U grading.

**410. Statistical Methods in Clinical Trials (4)** Lecture, three hours; discussion, two hours. Requisites: courses 100A, 100B. Design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, and stratification in human experimentation; various types of controls; prognostic factors, survivorship studies, and design of prognostic studies; organization of clinical trials—administration, comparability, protocols, clinical standards, data collection and management. S/U (optional only for nonmajors) or letter grading.

**411. Analysis of Correlated Data (4)** Lecture, three hours. Requisite: course 200A. Statistical techniques designed for analysis of correlated data, including cluster samples, multilevel models, and longitudinal studies. Computations done on SAS and STATA. Mixed models and generalized estimation equations (GEE). Emphasis on application, not theory. S/U or letter grading.

**413. Introduction to Pharmaceutical Statistics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 100A, 100B. Exploration of various types of statistical techniques used in pharmaceutical and related industries. Topics include bioassay and other assay techniques (e.g., ELISAs and FACs analysis), quality control techniques, and pharmacokinetic and pharmacodynamic modeling. S/U or letter grading.

**414. Principles of Sampling (4)** Lecture, three hours; discussion, one hour. Requisites: course 100B, Epidemiology 100. Statistical aspects of design and implementation of sample survey. Techniques for analysis of data, including estimates and standard errors. Avoiding improper use of survey data. Letter grading.

**495. Teacher Preparation in Biostatistics (2)** Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

**496. Teaching Biostatistics (2)** Seminar, two hours. Introduction to basic pedagogic principles for the teaching of biostatistics including biostatistics principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material including use of visual aids, grading, advising, and rapport with students. S/U grading.

**595. Effective Integration of Biostatistical Concepts in Public Health Research (4)** Tutorial, to be arranged. Enforced requisites: courses 110A, 110B, 400, 402A. Students meet weekly with their adviser and also work independently on their proposed projects. Course fosters ability of students to select relevant design and analysis techniques, synthesize knowledge, and apply insights to address public health problems. Oral examination and written report describing how students have used biostatistical methods to assess data from public health study required. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. Letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research. (2 to 12)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

# César E. Chávez Chicana/o and Central American Studies

## Chicana/o and Central American Studies Courses

### Lower Division

**10A. Introduction to Chicana/Chicano Studies: History and Culture (5)** (Formerly numbered Chicana and Chicano Studies 10A.) Lecture, three hours; discussion, one hour. Interdisciplinary survey of diverse historical experiences, cultural factors, and ethnic/racial paradigms, including indigeness, gender, sexuality, language, and borders, that help shape Chicana/Chicano identities. Emphasis on critical reading and writing skills. Letter grading.

**10B. Introduction to Chicana/Chicano Studies: Social Structure and Contemporary Conditions (5)** (Formerly numbered Chicana and Chicano Studies 10B.) Lecture, three hours; discussion, one hour. Multidisciplinary examination of representation, ideologies, and material conditions of Chicanas/Chicanos, including colonialism, race, labor, immigration, poverty, assimilation, and patriarchy. Emphasis on critical reading and writing skills. Letter grading.

**18. Leadership and Student-Initiated Retention (2)** (Formerly numbered Chicana and Chicano Studies M18.) (Same as African American Studies M18, American Indian Studies M18, and Asian American Studies M18.) Seminar, two hours. Limited to freshmen/sophomores/first-year transfer students. Not open for credit to students with credit for course M118. Exploration of issues in retention at UCLA through lens of student-initiated and student-run programs, efforts, activities, and services. Focus on populations with historically low graduation rates targeted by Campus Retention Committee. May not be applied toward departmental major or minor elective requirements. May be repeated once for credit. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Central American Studies: Histories and Cultures (5)** (Formerly numbered Chicana and Chicano Studies 20.) Lecture, one hour; discussion, one hour. Survey of histories of Central Americans from time of independence movements of early 18th century to present. Major topics include local indigenities, independence movements, 19th- and 20th-century dependency, state-nation and identity formation, politics of mestizaje, Indigenous resistance, imperialism and economic growth, relations with U.S., politics of development, and contemporary social movements. Letter grading.

**88. Sophomore Seminars: Chicana/Chicano Studies and Central American Studies (2)** (Formerly numbered Chicana and Chicano Studies 88.) Seminar, two hours. Limited to lower-division students. Readings and discussions designed to introduce students to current research in Chicana/Chicano studies. Culminating project may be required. May not be applied toward departmental major or minor requirements. May be repeated for credit with topic change. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Chicana/o and Central American Studies (2)** (Formerly numbered Chicana and Chicano Studies 97.) Seminar, two hours. Requisite: course 10A or 10B. Current topics and particular research methods in Chicana and Chicano studies through readings and other assignments. May be repeated for credit. P/NP or letter grading.

**98. Professional Schools Seminars (4)** (Formerly numbered Chicana and Chicano Studies 98.) Seminar, two hours. Limited to 20 students. Introduction to issues of professional (nonacademic) settings and careers through readings and other assignments. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100XP. Barrio Organization and Service Learning (5)** (Formerly numbered 100SL.) Seminar, two hours; discussion, two hours; field placement, six hours. Limited to juniors/seniors. Service learning placement in community-based organization, labor union, or service-oriented nonprofit organization. Study of role that these organizations play in improvement and change of Chicana/Chicano communities. Students meet on regular basis with instructors and provide periodic reports of their experience. Letter grading.

**101. Theoretical Concepts in Chicana/Chicano Studies (5)** (Formerly numbered Chicana and Chicano Studies 101.) Lecture, four hours; discussion, one hour. Requisite: course 10A or 10B. Survey of different theoretical approaches to field of Chicana and Chicano studies. Letter grading.

**102. Mexican Americans and Schools (4)** (Formerly numbered Chicana and Chicano Studies M102.) (Same as Education M102.) Seminar, two hours; discussion, two hours. Theoretical and empirical overview of Chicana/Chicano educational issues in U.S., with special emphasis on disentangling effects of race, gender, class, and immigrant status on Chicana/Chicano educational attainment and achievement. Examination of how historical, social, political, and economic forces impact Chicana/Chicano educational experience. P/NP or letter grading.

**103C. Origins and Evolution of Chicano Theater (5)** (Formerly numbered Chicana and Chicano Studies M103C.) (Same as Theater M103C.) Lecture, three hours. Designed for juniors/seniors. Exploration of development of Chicano theater from its beginning in legends and rituals of ancient Mexico to work of Luis Valdez (late 1960s). P/NP or letter grading.

**103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement (5)** (Same as Theater M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions that led to emergence of Chicano theater. Letter grading.

**103G. Contemporary Chicano Theater: Chicano Theater since 1980 (5)** (Formerly numbered Chicana and Chicano Studies M103G.) (Same as Theater M103G.) Lecture, three hours. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art. Letter grading.

**104. Comedy and Culture: Your Humorous Life (4)** (Formerly numbered Chicana and Chicano Studies 104.) Lecture, four hours. How to mine unique humorous life adventures from students' cultural identities and turn those distinct experiences into humorous literature. Students acquire skills to read their stories out loud, with emphasis on comedy in their pieces through art of storytelling and performance. P/NP or letter grading.

**104A. Art of Performance (4)** (Formerly numbered Chicana and Chicano Studies 104A.) Seminar, four hours. Examination of seminal works of Latina/o/x theater artists with particular focus on creating and embodying personal histories in performance. Features dramatic plays, autobiographical texts, and ensemble devised works that reflect changing nature of Latina/o/x cultural landscape. Introduction to basic elements of acting, including collaborative group performance, physical storytelling, and voice/speech exercises designed to free creative voice. Examination of performance of cultural expression, political tool, and personal identity. P/NP or letter grading.

**105A. Early Chicana/Chicano Literature, 1400 to 1920 (5)** (Formerly numbered Chicana and Chicano Studies M105A.) (Same as English M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from poetry of Triple Alliance and Aztec Empire through end of Mexican Revolution (1920), including oral and written forms (poetry, corridos, testimonios, folklore, novels, short stories, and drama) by writers such as Nezahualcoyotl (Hungry Coyote), Cabaza de Vaca, Lorenzo de Zavala, María Amparo Ruiz de Burton, Eusebio Chacón, Daniel Venegas, and Lorena Villegas de Magón. P/NP or letter grading.

**105B. Chicana/Chicano Literature from Mexican Revolution to el Movimiento, 1920 to 1970s (5)** (Formerly numbered Chicana and Chicano Studies M105B.) (Same as English M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Chicana/Chicano liter-

ature from 1920s through Great Depression and World War II, ending with Chicana/Chicano civil rights movement. Oral and written narratives by writers including Conrado Espinoza, Jovita González, Cleofas Jaramillo, Angelico Chávez, Mario Suárez, Oscar Acosta, and Evangelina Vigil. P/NP or letter grading.

**105C. Chicana/Chicano Literature since el Movimiento, 1970s to Present (5)** (Formerly numbered Chicana and Chicano Studies M105C.) (Same as English M105C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of Chicana/Chicano literature since 1970s, with particular emphasis on how queer and feminist activism as well as Central and South American migration have shaped 21st-century chicanidad. Oral, written, and graphic fiction, poetry, and drama by writers including John Rechy, Gloria Anzaldúa, Los Bros Hernández, Ana Castillo, and Dagoberto Gilb guide exploration of queer and feminist studies, Reagan generation, immigration debates, and emerging Latina/Latino majority. P/NP or letter grading.

**105D. Introduction to Latina/Latino Literature (5)** (Formerly numbered Chicana and Chicano Studies M105D.) (Same as English M105D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of U.S. Latina/Latino literature and introduction to its major critical trends, with emphasis on groups of Caribbean, Mexican, South American, and Central American origin. Representative works read in relation to such topics as relationship between Latina/Latino populations and U.S. cultural sphere, struggle for self-determination, experiences of exile and migration, border zones, enclaves and language, and mestizaje and its impact on cultural production. P/NP or letter grading.

**105E. Studies in Chicana/Chicano and/or Latina/Latino Literature (5)** (Formerly numbered Chicana and Chicano Studies M105E.) (Same as English M105E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Variable topics course to give students broad introduction to issues and themes in Chicana/Chicano and/or Latina/Latino literature. Topics include border, immigration, revolution, language, gender, sexuality, and diaspora, among others. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105F. Gender, Fiction, and Social Change (4)** (Formerly numbered Chicana and Chicano Studies 105F.) Lecture, four hours. Prerequisite: English Composition 3. Study of essays, novels, short narratives, and plays written by Chicanas/Latinas. Required readings represent writers with focus on themes of identity, ethnicity, gender, and cross-border experiences leading to social change. Critical reading and analysis of works, searching for strengths and flaws, to point out unique contribution of each work to greater body of U.S. literature. P/NP or letter grading.

**105XP. Seminar: Chicana/Chicano and/or Latina/Latino Literature—Community-Engaged Learning (5)** (Formerly numbered M105SL.) (Same as English M105XP.) Seminar, three or four hours; field placement, three or four hours. Enforced prerequisite: English Composition 3. Specialized studies in Chicana/Chicano and/or Latina/Latino literature. In-depth study of various topics related to Chicano/Latino communities in Southern California, including Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; and labor and literature. Service learning component includes minimum of 20 hours of meaningful work with agency involved with Chicana/Chicano and/or Latina/Latino community and selected by instructor. P/NP or letter grading.

**CM106. Health in Chicano/Latino Population (4)** (Formerly numbered Chicana and Chicano Studies CM106.) (Same as Public Health M106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Concurrently scheduled with course C276. Letter grading.

**106B. Diversity in Aging: Roles of Gender and Ethnicity (4)** (Formerly numbered Chicana and Chicano Studies M106B.) (Same as Gender Studies M104C, Gerontology M104C, Public Affairs M131, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

**C107. Latina/Latino Families in U.S. (4)** (Formerly numbered Chicana and Chicano Studies C107.) Lecture, four hours; discussion, one hour (when scheduled). Study of how intersections of race, class, and gender help shape experiences of Latina/Latino families in U.S. society and how these intersections also help shape individual experiences within families. Examination of family, race, class, and gender as sociological concepts. Readings about family experiences of Mexican and Central American groups in U.S., with special emphasis on immigrants, and analysis of how race, class, and gender together

play important roles in shaping these experiences. Discussion of roles of structure and space for agency in each context. Concurrently scheduled with course C212. P/NP or letter grading.

**108A. Music of Latin America: Mexico, Central America, and Caribbean Isles (5)** (Formerly numbered Chicana and Chicano Studies M108A.) (Same as Ethnomusicology M108A.) Lecture, four hours; discussion, one hour. Survey of traditional and contemporary musical culture. P/NP or letter grading.

**109. Chicana/Chicano Folklore (4)** (Formerly numbered Chicana and Chicano Studies 109.) Lecture, four hours. Examination of roots of Chicana/Chicano folklore in Mexican oral tradition in mid-19th century and development of Chicana/Chicano folklore to present day. P/NP or letter grading.

**CM110. Chicana Feminism (4)** (Formerly numbered Chicana and Chicano Studies CM110.) (Same as Gender Studies CM132A.) Lecture, four hours. Enforced prerequisite: course 10A or Gender Studies 10. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM214. P/NP or letter grading.

**111. Chicana/Chicano and Latina/Latino Intellectual Traditions (5)** (Formerly numbered Chicana and Chicano Studies 111.) Lecture, five hours. General view of philosophical, cultural, and social thought as well as intellectual traditions in Americas. Roles of writers as intellectuals and cultural/political strategists, and as definers of (national) identity, social reality, and struggles of liberation. Letter grading.

**113. Day of Dead Ritual (4)** (Formerly numbered Chicana and Chicano Studies 113.) Lecture, four hours; discussion, one hour (when scheduled). Introduction to philosophical roots and evolution of traditional celebration of Day of Dead ritual. Contemplation of indigenous, Spanish, Mexican, Chicano, and other influences and manifestations of this ritual. Special attention to Nahuatl language and worldview related to this ancient ritual, such as ancient calendar systems. Designed to motivate critical thinking about what is observed in altars today and impact globalization has on tradition. P/NP or letter grading.

**113B. Origin and Evolution of Ritual Traditions in Mexico and Central America (4)** (Formerly numbered Chicana and Chicano Studies 113B.) Lecture, four hours; discussion, one hour (when scheduled). Analytical overview of origin and evolution of cultural traditions of Christmas, Easter, and Day of Dead, from pre-Hispanic to contemporary manifestations in Mexico and Central America. Exploration of how Aztec and Mayan astronomical rituals became foundation for Spanish domination and later globalization. Winter solstice became Christmas, spring equinox became celebration of Easter, and end of harvest became Todos los Santos. Examination of original purpose of sugar skull, piñata, pastorela shepherds' drama, and traditional dances as effective tools of colonization. Letter grading.

**114. Chicanos in Film/Video (5)** (Formerly numbered Chicana and Chicano Studies M114.) (Same as Film and Television M117.) Lectures/screenings, five hours; discussion, one hour. Goal is to gain nuanced understanding of Chicano cinema as political, socioeconomic, cultural, and aesthetic practice. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres—silent greaser films, social problem films, Westerns, and gang films—that are major genres that account for films about or with Mexican Americans produced between 1908 and 1980. Examination of recent Chicano-produced films that subvert or signify on these Hollywood genres, including Zoot Suit, Ballad of Gregorio Cortez, and Born in East L.A. Consideration of shorter, more experimental work that critiques Hollywood image of Chicanos. Guest speakers include both pioneer and up-and-coming filmmakers. P/NP or letter grading.

**115. Musical Aesthetics in Los Angeles (4)** (Formerly numbered Chicana and Chicano Studies M115.) (Same as Ethnomusicology M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on cross-cultural basis of diverse musical contexts within vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and commercial music industry. P/NP or letter grading.

**116. Chicano/Latino Music in U.S. (5)** (Formerly numbered Chicana and Chicano Studies M116.) (Same as Ethnomusicology M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of U.S. P/NP or letter grading.

**117. Chicana/Chicano Images in Mexican Film and Literature (4)** (Formerly numbered Chicana and Chicano Studies 117.) Lecture, four hours. Preparation: adequate understanding of Spanish-language films without English subtitles. Throughout its rich history, spanning more than 100 years, Mexican



cinema has produced great variety of films that deal with Chicana/Chicano experience. Like its U.S. counterpart, Mexican cinematic discourse portrayal of Chicanas/Chicanos has been plagued by use of stereotypes that limit visual representation of Chicanas/Chicanos. Exploration of causes and effects for such obtuse cinematic representation. P/NP or letter grading.

**118. Student-Initiated Retention and Outreach Issues in Higher Education (4)** (Formerly numbered Chicana and Chicano Studies M118.) (Same as African American Studies M118, American Indian Studies M118, and Asian American Studies M168.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

**119. Chicano/Latino Community Formation: Critical Perspectives and Oral Histories (4)** (Formerly numbered Chicana and Chicano Studies M119.) (Same as Labor Studies M123.) Lecture, four hours. Analysis of historical formation and development of Chicano/Latino communities in 20th century, with focus on labor, immigration, economic structures, electoral politics, and international dimensions. Letter grading.

**120. Immigration and Chicano Community (4)** (Formerly numbered Chicana and Chicano Studies 120.) Lecture, three hours. Discussion on relationship between international immigration and development of Chicana/Chicano community. Examination of U.S. immigration policy and relationship between Mexican-origin population and other Latin American immigrants. P/NP or letter grading.

**121. Issues in Latina/Latino Poverty: Mexican and Central American Voices from Los Angeles (4)** (Formerly numbered Chicana and Chicano Studies M121.) (Same as Labor Studies M121 and Urban Planning M140.) Lecture, four hours. Examination of key issues (work, housing, and neighborhoods) in urban poverty, with particular focus on Mexican and Central American immigrant populations in Los Angeles. Exploration of major theoretical models that explain urban poverty and application of them in comparative context while exploring differences between Mexican and Central American immigrants. Social conditions and forces that help us understand lives of poor people in comparative context while looking at differences between two major Latino-origin populations in Los Angeles. Critical analysis of new forms of urban poverty in contemporary American society. Letter grading.

**122. Planning Issues in Latina/Latino Communities: Preserving and Strengthening Community Assets in Mexican and Salvadoran Los Angeles (4)** (Formerly numbered Chicana and Chicano Studies M122.) (Same as Labor Studies M122 and Urban Planning M171.) Lecture, four hours. How community and economic development interact, role of assets in community development, and unique synergies and pitfalls that enable or disable communities from developing to their potential. How to strengthen and how to preserve community resources in Pico-Union neighborhood in Los Angeles. Research entails historical analysis, reviews, interviews, electronic asset mapping, web-based data processing and analysis, oral and written reports, and cyber-based research. Letter grading.

**123. Applied Research Methods in Latino Communities (4)** (Formerly numbered Chicana and Chicano Studies 123.) Lecture, three hours. Through combination of lectures, key readings, and several experiments, introduction to several applied research methods that are highly effective in producing sound and methodologically rigorous studies on poor and/or Latino communities, including important data that can be used for critical analysis and policy recommendations. Letter grading.

**124. Latinx Immigration Policy and Politics (4)** (Formerly numbered Chicana and Chicano Studies M124.) (Same as Honors Collegium M143.) Lecture, four hours. Critical introduction to U.S. immigration policies and politics, and their disproportionate impacts on Latinx community. Topics include some of root causes of Latin American migration; federal, state, and local immigration law-making; and how race, gender, and sexuality impact and are impacted by immigration policies (e.g., legalization, border militarization, deportation) and politics (from voting to activism). P/NP or letter grading.

**125. U.S./Mexico Relations (4)** (Formerly numbered Chicana and Chicano Studies M125.) (Same as Labor Studies M125.) Lecture, four hours. Examination of complex dynamics in relationship between Mexico and U.S., using political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries. P/NP or letter grading.

**126. Politics of Crisis: Migration, Identity, and Religion (4)** (Formerly numbered Chicana and Chicano Studies M126.) (Same as Honors Collegium M145.) Lecture, three hours. Examination of individual and collective religious response of Latin Americans and Latinas/Latinos in U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Letter grading.

**127. Farmworker Movements, Social Justice, and United Farm Workers Legacy (4)** (Formerly numbered Chicana and Chicano Studies M127.) (Same as Labor Studies M127.) Lecture, four hours. Designed for juniors/seniors. Historical and social context of farmworker organizing, including its multiracial origins and its influence on fight for equality of working women. Specific focus on organizing of United Farm Workers and Farm Laborers Organizing Committee, and their relationship to AFL-CIO, other unions, and their influence on Chicano Movement. Letter grading.

**128. Race, Gender, and U.S. Labor (4)** (Formerly numbered Chicana and Chicano Studies M128.) (Same as Labor Studies M128.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in U.S. and North America. Discussion of race, class, and gender issues raised within movement, and various strategies for social change and economic equity pursued through organized labor and other means. Letter grading.

**128B. Class and Gender in Care Work (4)** (Same as Asian American Studies M162, Gender Studies M140C, and Labor Studies M143.) Lecture, three hours; discussion, one hour. Examination of how gender, race, class, and citizenship status shape domestic labor in U.S. Examination of domestic worker experiences through film, fiction, and traditional scholarship. Investigation of why domestic work is in high demand, who employs domestic workers, and why immigrants and women of color make up large percentage of this workforce. Exploration of how domestic workers navigate pay and working conditions, and how they build community and family networks in shadows of their privileged employers. P/NP or letter grading.

**128C Common Thread: Garment Workers Past, Present, Future (4)** (Same as Gender Studies M169 and Labor Studies M108.) Lecture, three hours. Study blends frameworks from economics, labor history, and ethnic studies to offer in-depth exploration of lives and experiences of garment industry workers from early 19th century to present. In contrast to traditional narratives, study locates garment workers—majority of whom are immigrant women—at vanguard of U.S. labor movement, showing how they pioneered new forms of worker education and other social welfare programs, and became leaders in fight for women's, civil, and immigrant rights. Exploration of garment work relationship to American culture, tracing how sweatshop became symbol of worker exploitation, how popular culture and fashion trends impacted lived realities of workers in those shops, and how racial and gendered expectations shaped public perceptions of garment workers. By doing so, study reveals garment work to be central thread that ties together histories of global trade, industrialization, gender and sexuality, immigration, radicalism, unionization, and American imperialism. P/NP or letter grading.

**129. Community-Engaged Research Methods (4)** (Formerly numbered M129.) (Same as Labor Studies M129 and Public Affairs M117C.) Lecture, four hours. Students are trained in designing, drafting, piloting, and administering new survey focused on transitions to adulthood. Written in collaboration with labor and community partners serving Latinx, Asian Americans and Pacific Islanders, Black, and Indigenous youth and low-wage workers, this survey gathers data on workforce development, labor rights, education, health, mental health, and civic engagement of young people residing in Black, Indigenous, and people of color communities. Students are exposed to historical development of racial statistics, role of racial statistics in contemporary life, and critical quantitative science. Includes testing questions on racial identity and attitudes, gender identity, workforce development, labor rights, healing and wellness, and other topics determined by labor and community partners.

**129B. Participatory Action Research on Youth Organizing for Racial Justice (4)** (Same as African American Studies M129B, American Indian Studies M129, Asian American Studies M128, and Public Affairs M122.) Lecture, four hours. Students are trained to conduct participatory action research on grassroots youth organizing across California. Students gain historical and theoretical background on multi-racial and inclusive organizing. Students learn how to collect and analyze data pertaining to pressing organizing issues. Study and critical analysis of youth organizing strategies. Weekly training modules on data collection and grassroots organizing strategies that prepare students for internships in grassroots youth organizing groups serving Asian American, Black, Latinx, and Native American communities. P/NP or letter grading.

**130. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers (4)** (Formerly numbered Chicana and Chicano Studies M130.) (Same as African American Studies M167, Asian American Studies M163, and Labor Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

**131. Barrio Popular Culture (4)** (Formerly numbered Chicana and Chicano Studies 131.) Lecture, three hours. Construction of model by which to organize study of Chicana/Chicano popular culture by focusing on barrio as metaphor for community. Examination of beliefs, myths, and values of Chicana/Chicano culture and representations in icons, heroes, legends, stereotypes, and popular art forms through literature, film, video, music, mass media, and oral history. Letter grading.

**132. Border Consciousness (4)** (Formerly numbered Chicana and Chicano Studies M132.) (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M132.) Lecture, three hours; discussion, one hour (when scheduled). Investigation through history, popular culture, and mass media of bilingual and bicultural identities produced by geographical and cultural space between Mexico and U.S. Special attention to border consciousness as site of conflict and resistance. Letter grading.

**133. Chicana Lesbian Literature (4)** (Formerly numbered Chicana and Chicano Studies M133.) (Same as Gender Studies M133 and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M133.) Lecture, four hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of familia in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

**134XP. Engaging Immigrants and Their Families (5)** (Formerly numbered Chicana and Chicano Studies M134SL.) (Same as Community Engagement and Social Change M134XP and Labor Studies M134XP.) Lecture, two hours; discussion, two hours; field placement, two hours. Survey and exploration of immigrant landscape in Los Angeles—truly global city acting in part to buffer, settle, and incorporate immigrants in daily life. Focus on civil society to explore multiple forms of interventions and impacts that take place in multiple communities across Los Angeles basin. Service learning partnerships focus on organizations addressing immigration concerns. Letter grading.

**CM135. Bilingual Writing Workshop (4)** (Formerly numbered Chicana and Chicano Studies CM135.) (Same as Gender Studies M135C and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M135.) Seminar, four hours. Limited to juniors/seniors. Writing sample required; access to course web page mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression through genre of short fiction. Bilingualism as both politics and aesthetics to be central theme. Discussion and analysis of Chicana/Chicano and Latina/Latino short story collections. Peer critique of weekly writing assignments. Emphasis on narrative techniques such as characterization, plot, conflict, setting, point of view, and dialogue, and magical realism as prevailing Chicanesque/Latinesque style. Some attention to process of manuscript preparation, public reading, and publication. Concurrently scheduled with course C235. Letter grading.

**136. Censored! Art on Trial (4)** (Formerly numbered Chicana and Chicano Studies M136.) (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M136.) Lecture, four hours. Examination of censorship in visual arts, particularly art of queer Chicana/Chicano and Latina/Latino artists such as Alma Lopez, Ester Hernández, and Alex Donis. Other censored artists include feminist artist Yolanda López, queer artists Robert Mapplethorpe and David Wojnarowicz, painter Christ Offili, photographers Sally Mann and Andres Serrano, printmaker Enrique Chagoya, muralist Noni Olabisi, writer Salman Rushdie, and four performance artists—Karen Finley, Tim Miller, John Fleck, and Holly Hughes—whose work was vetoed by chair of National Endowment for Arts (NEA) in 1990 after they had successfully passed through NEA's peer review process and who came to be known as NEA Four. P/NP or letter grading.

**137. Maya Art and Architecture (4)** (Formerly numbered Chicana and Chicano Studies M137.) (Same as Art History CM139A.) Lecture, three hours. Requirement: course 27. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 BC to Conquest, with particular emphasis on history and iconography. P/NP or letter grading.

**138A. Space, Place, and Race (4)** (Formerly numbered Chicana and Chicano Studies 138A.) Seminar, four hours. Investigation of theories of spatial formation and their import for study of race and ethnicity in the U.S. Theories of space and place from interdisciplinary list of readings to investigate ways racial formation is embedded in property, maps, streets, and borders. Themes include introduction to spatial theory, settler colonialism, critical cartography, boundaries, and transgression. How space has shaped racial formation in multiracial places. Investigation of ways space, place, and race operate in maps, built environment, and multimedia world. P/NP or letter grading.

**138B. Barrio Suburbanism (4)** (Formerly numbered Chicana and Chicano Studies 138B.) Seminar, four hours. Examination of barrio suburbanism, in which Chicanas/Chicanos and Latinas/Latinos impact working- and middle-class suburbs to reshape geography of metropolitan centers. Building upon urban studies of roles of public policy and planning in formation of el barrio,

how suburban forms operate in multiracial and regional context. Points of intersection and conflict that illuminate how Chicana/Chicano and Latina/Latino populations have impacted economic, social, and political contours of suburbs in Los Angeles metropolitan region. Major themes include urban policy, planning history, mapping, immigration, relational racial formation, and pursuit of regional democracy. P/NP or letter grading.

**139. Topics in Chicana/Chicano and/or Latina/Latino Literature (5)** (Formerly numbered Chicana and Chicano Studies M139.) (Same as English M191B.) Seminar, three or four hours. Enforced requisite: English Composition 3. Variable specialized studies course in Chicana/Chicano and/or Latina/Latino literature. Topics may include labor and literature; Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; literary New Mexico; specific literary genres. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**140A. Diasporic Nonfiction: Media Engagements with Memory and Displacement I (4)** (Formerly numbered Chicana and Chicano Studies M140A.) (Same as African American Studies M170A.) Seminar, three hours. Video production course, with emphasis on autobiographical, critical, and performance-based modes of nonfiction media making, drawing on practices of diasporic filmmakers who have grappled with suppressed collective memories of displacement, trauma, exile, and migration. What does it mean to make videos about memory in places where direct cues to remembering cannot be seen? Introduction to concepts from films and readings. Production assignments and screenings, with focus on questions of how to represent history, memory, family dynamics, and lived experience according to perspectives and interests of diasporic subjects. In Progress grading (credit to be given only on completion of course M140B).

**140B. Diasporic Nonfiction: Media Engagements with Memory and Displacement II (4)** (Formerly numbered Chicana and Chicano Studies M140B.) (Same as African American Studies M170B.) Seminar, three hours. Enforced requisite: course M140A. Students complete 20- to 30-minute video projects about issues or experiences central to everyday lives of collectives of diasporic peoples. They learn to propose, record, edit, and distribute one socially engaged nonfiction video and draw on their experiences from course M140A in writing voiceover, choreographing dances, designing public performances, interviewing, and recording everyday life. P/NP or letter grading.

**C141. Chicana and Latin American Women's Narrative (4)** (Formerly numbered Chicana and Chicano Studies C141.) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Analyses, comparisons, and discussion of narrative literary production of U.S. Chicana writers and their Latin American counterparts in English and Spanish, with particular focus on how each group deals with gender, ethnic, and class issues. Concurrently scheduled with course C251. Letter grading.

**142. Mesoamerican Literature (4)** (Formerly numbered Chicana and Chicano Studies 142.) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Survey of premises of Mesoamerican literatures, including myths, lyrics, poetry, religious celebrations, rituals, and drama, specifically of Aztec and Mayan peoples prior to European contact. Letter grading.

**143. Mestizaje: History of Diverse Racial/Cultural Roots of Mexico (4)** (Formerly numbered Chicana and Chicano Studies 143.) Lecture, four hours; discussion, one hour (when scheduled). Historical examination of diverse racial and cultural roots of Chicanas and Chicanos. Utilizing theoretical frameworks of mestizaje, Aztlán, indigenismo, La Raza Cósmica, and la tercera raíz, examination of some important groups who have contributed to formation of Mexican national culture. Development of race relations in Mexico during colonial period, with focus on analysis of Nahuas (Aztecs), Mixtecs, Spaniards, and African slave population. Analysis of Asian immigration to Mexico and California during national period, specifically examination of migration and adaptation experiences of Chinese, Japanese, and Punjabi-Indian immigrants. P/NP or letter grading.

**143B. Afro-Latina/o Experience(s) in U.S. (4)** (Formerly numbered 143B.) (Same as African American Studies M155.) Lecture, four hours; discussion, one hour (when scheduled). Focus on Afro-Latina/o experience in U.S. through exploration of its historical roots and contemporary forms. How colorism in Latin America and U.S. influence Afro-Latina/o identity. Regional differences and different types of Afro-Latina/os that include Blaxicans, Nuyoricans, Afro-Cubans, and others are taken into account. Discussion of themes that include feminism, politics, culture, music, and identities in order to obtain comprehensive picture of Afro-Latina/os in U.S. yesterday and today. P/NP or letter grading.

**144. Women's Movement in Latin America (4)** (Formerly numbered Chicana and Chicano Studies M144.) (Same as Gender Studies M144 and Labor Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender strug-

gles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

**145B. Literature of Chicana/Chicano Movement (4)** (Formerly numbered M145B.) Lecture, three hours. Examination of literature of Chicana/Chicano movement covering period from first manifestations of Chicano artistic production in 1965 with *el Teatro Campesino* through rise of women's writing, including work by Cherrie Moraga (1983), Helena Maria Viramontes (1985), and Sandra Cisneros (1991). P/NP or letter grading.

**146. Chicano Narrative (4)** (Formerly numbered M146.) Lecture, three hours. Introduction to major Chicano narrative genres—novel, romance, satire, autobiography, *crónica/semblanza*, Chicana detective novel, and Chicana solidarity fiction. Texts examined within their own geographic, cultural, and historical contexts, as well as within history of narrative forms. P/NP or letter grading.

**CM147. Transnational Women's Organizing in Americas (4)** (Formerly numbered Chicana and Chicano Studies CM147.) (Same as Gender Studies M147C.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. Concurrently scheduled with course C215. P/NP or letter grading.

**148. Politics of Struggle: Race, Solidarity, and Resistance (4)** (Formerly numbered Chicana and Chicano Studies M148.) (Same as African American Studies M148.) Lecture, four hours. Examination of Chicana/Chicano inter-group relations and political coalitions with other Latinos, African Americans, Asian and Pacific Islanders, and Euro-Americans, especially in communities undergoing rapid changes in demographic composition. Letter grading.

**149. Gendered Politics and Chicana/Latina Political Participation (4)** (Formerly numbered Chicana and Chicano Studies 149.) Lecture, four hours. Examination of Chicanas and Latinas as participants, organizers, and leaders in communities, workplaces, labor unions, and government. Survey of Chicanas/Latinas in politics and as policymakers in appointed and elected offices. Analysis of gendering of politics and political behavior. Letter grading.

**150. Affirmative Action: History and Politics (4)** (Formerly numbered Chicana and Chicano Studies 150.) Lecture, four hours; discussion, one hour (when scheduled). Historical examination of political economic context in which affirmative action policies and programs were conceived and implemented. Review of impact on Chicanas/Chicanos, Latinas/Latinos, and other communities. Specific analysis of university admissions, hiring and contracting practices, and state initiatives. Letter grading.

**151. Human Rights in Americas (4)** (Formerly numbered Chicana and Chicano Studies 151.) Lecture, four hours. International human rights laws in North, Central, and South America and U.S. foreign policy in context of historical, political, social, and legal issues and court decisions involving U.S. and its role and relations with governments and institutions. Historical and contemporary development of regional and international law, institutions, law, and norms related to promotion and protection of human rights. P/NP or letter grading.

**152. Disposable People: U.S. Deportation and Repatriation Campaigns (4)** (Formerly numbered Chicana and Chicano Studies 152.) Seminar, four hours. Examination of U.S. deportation campaigns targeted at Mexican, Central American, and other Latin American workers, residents, and U.S.-born citizens. Addresses various periods of large-scale, highly-organized deportation and repatriation efforts including Great Depression in 1930s, Operation Wetback in 1950s, Central American Minors (CAM) program, Deferred Action for Childhood Arrivals (DACA), and Temporary Protected Status (TPS). P/NP or letter grading.

**153A. Central Americans in U.S. (4)** (Formerly numbered Chicana and Chicano Studies 153A.) Lecture, four hours. Interdisciplinary survey of social, historical, political, economic, educational, and cultural experiences of Central American immigrants and their children in U.S. Introduction to several con-

temporary experiences and issues in U.S. Central American communities. With focus mostly on Guatemalan, Honduran, and Salvadoran immigrants, exploration of social structures that constrain individuals, as well as strategies and behaviors immigrants and their communities have taken to establish their presence and incorporate into U.S. society. How Central American identity has been constructed and how this identity intersects with race, gender, and legal status. P/NP or letter grading.

**153B. Central American Racial Constructions (4)** (Formerly numbered Chicana and Chicano Studies 153B.) Lecture, four hours. Interdisciplinary, trans-historical, and transnational exploration of indigenism, indigeneity, afro-indigeneity, blackness, *mulataje*, *ladinization*, and other racial-gendered constructions among peoples of and in Central America, and how these groups redefine their racial identification and disidentifications in and/or in relation to U.S. P/NP or letter grading.

**153C. Migrating U.S./Central American Cultural Production (4)** (Formerly numbered Chicana and Chicano Studies 153C.) Lecture, four hours. Exploration of culture making through memory, legends, counter-narratives, signs, symbols, foodways, and sounds as migratory processes that are transnational, transgenerational, translocal, and as part of U.S. Central American, Latina/Latino, and migrant experience within, across, and among cultural groups. P/NP or letter grading.

**153D. U.S. Central American Narratives (4)** (Formerly numbered Chicana and Chicano Studies 153D.) Lecture, four hours. Examination of textual narratives and genres that emerged or were actively deployed from Central America beginning with civil wars of late 1960s into late 1990s. Texts are read beyond confines of nation-state as narratives and subjectivities in exile. As part of stories of immigrants, these narratives contribute to making of U.S. Central American diasporas, and these communities making home in some other place than original or (re-)imagined homeland. P/NP or letter grading.

**154. Contemporary Issues among Chicanas (4)** (Formerly numbered Chicana and Chicano Studies M154.) (Same as Gender Studies M132B.) Lecture, two and one half hours. Requisite: Gender Studies 10. Overview of conditions facing Chicanas in U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/NP or letter grading.

**155A. Latinos in U.S. (4)** (Formerly numbered Chicana and Chicano Studies M155A.) (Same as Sociology M155.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of history and social conditions of Latinos in Los Angeles as well as nationally, with particular emphasis on their location in larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

**155B. U.S. Latino Politics (5)** (Formerly numbered Chicana and Chicano Studies M155B.) (Same as Political Science M181B) Lecture, four hours; discussion, one hour (when scheduled). Examination of history and contemporary role of Latinos in U.S. political system. Topics include historical analysis of Latino immigration and migration; civil rights movement; increases in citizenship, registration, and voting in 1980s and 1990s; new wave of anti-immigrant attitudes; Development, Relief, and Education for Alien Minors (DREAM) Act and subsequent DREAMer movement; and response by Latinos today, with discussion of role of Latino vote in recent presidential elections. P/NP or letter grading.

**156A. Immigrant Rights, Labor, and Higher Education (4)** (Formerly numbered Chicana and Chicano Studies M156A.) (Same as Asian American Studies M166A and Labor Studies M166A.) Lecture, three hours; discussion, one hour. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

**156B. Research on Immigration Rights, Labor, and Higher Education (4)** (Formerly numbered Chicana and Chicano Studies M156B.) (Same as Asian American Studies M166B and Labor Studies M166B.) Seminar, two hours. Requisite: course M156A. Expansion of research conducted by students in course M156A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

**156C. Research on Immigrant Students and Higher Education (4)** (Formerly numbered Chicana and Chicano Studies M156C.) (Same as Asian American Studies M166C and Labor Studies M166C.) Seminar, three hours. Enforced

requisites: courses M156A, M156B. Expansion of research conducted by students in courses M156A and M156B involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Designed around class project, where students work on showcasing all material collected throughout year. Letter grading.

**157. Chicano Movement and Its Political Legacies (4)** (Formerly numbered Chicana and Chicano Studies 157.) Lecture, four hours. Collective examination of Chicano Movement of 1960s and 1970s and analysis of its political legacies. Grounded in historiographic inquiry and social movement theory, investigation of mobilization of diverse sectors of el movimiento, including students, workers, artists, youth, community activists, and women. Exploration of myriad issues and struggles that compelled Chicanas/Chicanos to resist such as land and labor rights, education, anti-war movements, community autonomy, police brutality, political inclusion, cultural recovery, racism, sexism, and class exploitation. Investigation of diverse ideologies, debates, and legacies of Chicano Movement through analysis of Chicana/Chicano motivations for organizing, modes, strategies, innovations, challenges, and articulation of new political subjectivities. P/NP or letter grading.

**158. Chicana Historiography (4)** (Formerly numbered Chicana and Chicano Studies M158.) (Same as Gender Studies M157 and History M151D.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

**159A. History of Chicano Peoples (4)** (Formerly numbered Chicana and Chicano Studies M159A.) (Same as History M151A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of Rio through 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical forces affecting community. Social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis on social forces, class analysis, social, economic, and labor conflict, ideas, domination, and resistance. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of paper. P/NP or letter grading.

**159B. History of Chicano Peoples (4)** (Formerly numbered Chicana and Chicano Studies M159B.) (Same as History M151B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent in U.S. through 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical and policy issues affecting community. Within framework of domination and resistance, discussion deals with social structure, economy, labor, culture, political organization, conflict, and ideology. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of paper. P/NP or letter grading.

**160. Introduction to Chicana/Chicano Speech in American Society (4)** (Formerly numbered Chicana and Chicano Studies 160.) Lecture, three hours. Survey course presenting (1) basic elements of Chicano language use, including history of Chicano languages, types and social functions of Chicano speech (pachuco, caló, Spanglish), sexist language, and multilingualism and monolingualism and (2) major social issues associated with language use by Chicanos and other urban ethnic populations. Letter grading.

**161. Chicana and Chicano Rhetoric (4)** (Formerly numbered Chicana and Chicano Studies 161.) Lecture, four hours. Examination of speeches and other public discourse of Chicana/Chicano communities associated with political and social movements, using field of rhetoric (study of public speech and persuasion). Development of public speaking skills and abilities. P/NP or letter grading.

**163. Bilingual Advantage: Spanish Language Topics on Chicana/Chicano and Latin American Cultures (5)** (Formerly numbered Chicana and Chicano Studies 163.) Lecture, four hours; discussion, one hour. Requisite: Spanish 4. Review of Spanish language literature, newsprint, radio, and television in U.S., providing for student development of academic skills in Spanish. Comparison with Spanish language mass media in other parts of world. Letter grading.

**164XP. Oral History: Latino New Immigrant Youth (5)** (Formerly numbered 164SL.) Seminar, three hours; tutoring, three hours. Theory, methodology, and practice of oral history, together with background information on Mexican, Central American, and Latino immigration. Emphasis on oral history and testimonio methods. P/NP or letter grading.

**165. Latinas and Latinos in Public Education (4)** (Formerly numbered Chicana and Chicano Studies 165.) Lecture, four hours. Examination of language issues pertinent to educational systems, including language inequity, literacy, testing, and socialization, as well as institutional ideologies. Letter grading.

**166. Paulo Freire for Chicana/Chicano Classroom (4)** (Formerly numbered Chicana and Chicano Studies 166.) Seminar, four hours. Introduction to pedagogy of Paulo Freire and examination of historical and contemporary problems circumscribing Chicana/Chicano education. Central focus to offer Freirian alternative to answer theoretical, methodological, practical, and policy questions about schooling of Chicanas/Chicanos in U.S. P/NP or letter grading.

**167XP. Taking It to Street: Spanish in Community (5)** (Same as Spanish M165XP.) Seminar, three hours; fieldwork, 10 hours. Enforced requisite: Spanish 25 or 27. Service learning course to give students opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Students required to spend minimum of eight to 10 hours per week at agreed on site in Latino community. P/NP or letter grading.

**168A. Latinos: Print Media (4)** (Formerly numbered Chicana and Chicano Studies 168A.) Lecture, four hours. Examination of systemic (mis)representations of Latinos by print media source (Los Angeles Times) by means of critical discourse analysis and metaphor theory. Investigation of empirical basis for theories of racism in language in this context. Student projects range from immigration to education and crime to culture. Letter grading.

**168B. Latinos: Television News (4)** (Formerly numbered Chicana and Chicano Studies 168B.) Lecture, four hours. Requisite: course 168A. Study of multimodal (visual, graphic, spoken, audio, and text) images disseminated by television news programs to learn how nation comes to their understanding of Latinos. Development of critical visual interpretive acuity through semiotics training and analysis of actual television news stories. Letter grading.

**169. Representations of Indigenous Peoples in Americas (4)** (Formerly numbered Chicana and Chicano Studies 169.) Lecture, four hours. Strongly recommended requisite: course 101. Introduction to different forms of representation of indigenous peoples and their presence in Americas, with emphasis on Mesoamerica and Andes. How indigenous images are expressed, perceived, and constructed at point of contact with Europeans during development of indigenismo and in current period. Discussion of how these relate to Chicana/Chicano identity construction. Letter grading.

**169B. Xican@ Indigeneity (4)** (Formerly numbered Chicana and Chicano Studies 169B.) Seminar, four hours. Limited to juniors/seniors. Research seminar organized around readings and engaged discussion of critical topic of interest in field. Exploration of issue, its theoretical implication for field, and practical implications for communities. Addresses Xican@; indigeneity. Exploration of historical and contemporary indigenous character of Xican@; peoples; what it means to be indigenous, Indian mestiza/o; relationship to and between cultural and linguistics memories, continuities, losses, changes, revitalization, and reclamation; and indigenous epistemologies, decolonization, and la perspectiva Xican@; . Final research project required. P/NP or letter grading.

**170XP. Topics in Community Engagement (5)** (Formerly numbered Chicana and Chicano Studies M170SL.) (Same as Spanish M172XP.) Seminar, four hours; field project, four to six hours. Requisite: Spanish 25. Introduction to community engagement in various forms. Exploration of methods of community involvement and change making processes within variety of professional contexts in community. Students engage in experiential research, service, and/or learning to broaden their understanding of Spanish-speaking and Latinx communities. Students have opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Topics may include oral tradition, immigrant narratives, visual culture and community, language and identity in community, urban spaces, etc. May be repeated for credit with topic change. P/NP or letter grading.

**171. Humor as Social Control (4)** (Formerly numbered Chicana and Chicano Studies 171.) Lecture, four hours. Hegemonic humor directs laughter of more powerful people against those with less power. In this case laughter becomes weapon used against Latinos and immigrants. With rise of Latinos in last decade, there has been increase of various guises of anti-Latino hegemonic humor in commercial mass-mediated popular culture. Exploration of theorizing, as well as today's myriad examples, of such humor to develop critical literacy of social work it accomplishes. Letter grading.

**172. Chicana and Chicano Ethnography (4)** (Formerly numbered Chicana and Chicano Studies 172.) Lecture, four hours. Culture change theory encompasses such issues as innovation, syncretism, colonialism, modernization, urbanization, migration, and acculturation. Examination of methods anthropologists/ethnographers use in studying and analyzing culture change within ethnohistorical background of Mexican and Mexican American people to clarify social and cultural origins of modern habits and customs and, more importantly, unravel various culture change threads of that experience. Topics include technology and evolution, Indian nation-states, miscegenation, peasantry, expansionism, industrialization, immigration, ethnicity, and adaptation. Field project on some aspect of culture change required. P/NP or letter grading.

**173. Nonviolence and Social Movements (4)** (Formerly numbered Chicana and Chicano Studies M173.) (Same as African American Studies M173 and Labor Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

**174AX. Restoring Civility: Understanding, Using, and Resolving Conflict (5)** (Formerly numbered Chicana and Chicano Studies 174AX.) Lecture, four hours; discussion, three hours. Course 174AX is enforced requisite to 174BX. Designed for students who want to learn principles of dialogue and mediation, as alternatives to violence, and practice how to apply them in educational settings. In Progress grading (credit to be given only on completion of course 174BX).

**174BX. Restoring Civility: Understanding, Using, and Resolving Conflict (5)** (Formerly numbered Chicana and Chicano Studies 174BX.) Lecture, four hours; discussion, three hours. Enforced requisite: course 174AX. Designed for students who want to learn principles of dialogue and mediation, as alternatives to violence, and practice how to apply them in educational settings. P/NP or letter grading.

**175. Chicana Art and Artists (4)** (Formerly numbered Chicana and Chicano Studies M175.) (Same as Art M184 and World Arts and Cultures M128.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

**176. Globalization and Transnationalism: Local Historical Dynamics and Praxis (4)** (Formerly numbered Chicana and Chicano Studies 176.) Lecture, four hours. Analysis of dynamics of Chicana/Chicano transnational community formation in comparative global perspective, explored both as historical result of and key future actor in localized dynamics of transnationalization in California's relation to world. Analysis of Chicana/Chicano experience in California as both highly linked node and localized microcosm of dynamics of globalization that is both affected by as well as influences course of alternative scenarios of globalization. Designed to help students develop critical political economy analysis of interplay between globalization and localized transnational dynamics that together are giving meaning to and constructing new social identities and strategies for struggle throughout world. P/NP or letter grading.

**CM177. Latino Social Policy (4)** (Formerly numbered Chicana and Chicano Studies CM177.) (Same as Public Affairs M142.) Lecture, three hours; discussion, one hour (when scheduled). Examination of social welfare of Latinos (Chicanos, Puerto Ricans, and Cubans) in U.S. through assessment and critical analysis of social policy issues affecting them. Survey of social, economic, cultural, and political circumstances affecting ability of Latinos to access public benefits and human services. Concurrently scheduled with course C277. Letter grading.

**178. Latinas/Latinos and Law: Comparative and Historical Perspectives (4)** (Formerly numbered Chicana and Chicano Studies 178.) Lecture, four hours. Survey of experiences of Latinas/Latinos with U.S. legal system. Examination of landmark appellate decisions and litigation efforts in jury service, voting rights, language, public accommodations, education, and other areas. Critical assessment of role of legal principles and litigation in improving Latina/Latino position within U.S. society. Letter grading.

**C179. Language Politics and Policies in U.S.: Comparative History (4)** (Formerly numbered Chicana and Chicano Studies C179.) Lecture, four hours. Historical overview of national and institutional language policies, especially schooling, in U.S. as context to understanding social, legal, and political constraints on bilingualism. Definitions and development of language policy and planning, history of general and educational language policies in U.S., demographic profile of language diversity, and current language and educational policy issues in U.S. Comparisons with selected international cases. Concurrently scheduled with course C274. P/NP or letter grading.

**180. Chicana and Chicano Schooling and Community Activism (4)** (Formerly numbered Chicana and Chicano Studies 180.) Seminar, four hours. Overview of Chicana/Chicano schooling issues in U.S., with special emphasis on several important historical events that exemplify struggle for educational justice and equity that affected Chicana/Chicano education—Mendez versus Westminster (1947) desegregation case and 1968 high school Chicana/Chicano student walkouts. Through oral history projects, documentation of legacy of Sylvia Mendez, who experienced segregation in one Mexican school in 1940s, Sal Castro, Chicano teacher and central figure in 1968 walkouts, and Chicano Youth Leadership Conference (CYLC). Examination of how historical, social, and political forces have impacted Chicana/Chicano educational experiences. P/NP or letter grading.

**181. History of Chicana/Chicano Los Angeles, 20th Century (4)** (Formerly numbered Chicana and Chicano Studies 181.) Lecture, four hours. History of Mexican American people in 20th-century Los Angeles. Readings and lectures emphasize formation of regional identity among Mexican Americans in Los Angeles and their significance to emergence of multicultural metropolis. Letter grading.

**CM182. Understanding Whiteness in American History and Culture (4)** (Formerly numbered Chicana and Chicano Studies CM182.) (Same as History M151C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of white identity and explore its significance to historical construction of race class in American history. Concurrently scheduled with course C256. Letter grading.

**183. History of Los Angeles (4)** (Formerly numbered Chicana and Chicano Studies M183.) (Same as History M155.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to present. Emphasis on diverse peoples of area, changing physical environment, various interpretations of city, and Los Angeles' place among American urban centers. P/NP or letter grading.

**184. History of U.S./Mexican Borderlands (4)** (Formerly numbered Chicana and Chicano Studies 184.) Lecture, four hours. Survey of historic and geographic diversity of Chicana/Chicano identity and culture, with emphasis on regional communities of California, New Mexico, and Texas in Spanish/Mexican borderlands as situated within U.S. national context. Letter grading.

**185. Whose Monument Where: Course on Public Art (4)** (Formerly numbered Chicana and Chicano Studies M185.) (Same as Art M185 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is public, what is public space at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

**186A. Beyond Mexican Mural: Beginning Muralism and Community Development (4)** (Formerly numbered Chicana and Chicano Studies M186A.) (Same as Art M186A and World Arts and Cultures M125A.) Studio/lecture, four hours. Corequisite: course M186AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

**186AL. Beyond Mexican Mural: Beginning Muralism and Community Laboratory (4)** (Formerly numbered Chicana and Chicano Studies M186AL.) (Same as Art M186AL and World Arts and Cultures M125AL.) Laboratory, four hours. Corequisite: course M186A. Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**186B. Beyond Mexican Mural: Intermediate Muralism and Community Development (4)** (Formerly numbered Chicana and Chicano Studies M186B.) (Same as Art M186B and World Arts and Cultures M125B.) Studio/lecture, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

**186BL. Beyond Mexican Mural: Intermediate Muralism and Community Laboratory (4)** (Formerly numbered Chicana and Chicano Studies M186BL.) (Same as Art M186BL and World Arts and Cultures M125BL.) Laboratory, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186B. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**186C. Beyond Mexican Mural: Advanced Muralism and Community Development (4)** (Formerly numbered Chicana and Chicano Studies M186C.) (Same as Art M186C and World Arts and Cultures M125C.) Studio/lecture, six hours. Requisites: courses M186B, M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

**186CL. Beyond Mexican Mural: Advanced Muralism and Community Laboratory (2)** (Formerly numbered Chicana and Chicano Studies M186CL.) (Same as Art M186CL and World Arts and Cultures M125CL.) Laboratory, two hours. Requisite: course M186BL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**187. Latino Metropolis: Architecture and Urbanism in Americas (4)** (Formerly numbered Chicana and Chicano Studies M187.) (Same as History M151E and Urban Planning M187.) Lecture, four hours. Introduction to history of architecture and urbanism in Americas, from fabled cities of Aztec empire to barrios of 21st-century Los Angeles and Miami. Emphasis on role of cities in Latina/Latino experience and uses of architecture and city planning to forge new social identities rooted in historical experiences of conquest, immigration, nationalization, and revolution. P/NP or letter grading.

**187B. Colonial Latin American Art (4)** (Formerly numbered Chicana and Chicano Studies M187B.) (Same as Art History CM141.) Lecture, three hours; discussion, one hour (when scheduled). Art and architecture of colonial Americas from 16th to 18th century. P/NP or letter grading.

**187C. Aztec Art (5)** (Formerly numbered Chicana and Chicano Studies 187C.) Lecture, four hours. Introduction to Aztecs through analysis of art in different media including sculpture, featherworks, polychrome pottery, manuscripts, and architecture. Readings from ethnohistoric sources compiled in early colonial period by indigenous scribes and Spanish officials (friars, soldiers, chroniclers, and administrators). Study of Aztecs, their art, their civilization, and major topics discussed in existing scholarship, including calendar, foundational and creation myths, stories of migration, human sacrifice, rulership, warfare, gender, religion, philosophy, and art and architecture. Assessment of validity of scholarly assumptions about Aztecs, their art, and society in light of available sources. P/NP or letter grading.

**188. Special Courses in Chicana/o and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 188.) Seminar, three hours. Some sections may require prior coursework. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Chicana/Chicano Studies and Central American Studies (2)** (Formerly numbered Chicana and Chicano Studies 190.) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to present reports, discuss research methodologies, share findings, and provide feedback on each other's work. Culminates in public summit of Chicana/Chicano student research at which students expected to present polished position papers on their research. May be repeated for credit. P/NP grading.

**191. Variable Topics Research Seminars: Chicana/o and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 191.) Seminar, three hours. Limited to juniors/seniors. Research seminar organized around readings and engaged discussion of critical topic of interest in field. Exploration of issue, its theoretical implication for field, and practical implications for communities. Final research project required. May be repeated for credit. P/NP or letter grading.

**192A. Undergraduate Practicum in Chicana/o and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 192A.) Seminar, four hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students who assist in preparation of materials and/or development of innovative programs or courses of study under guidance of faculty members in small group settings or one-on-one setting. May not be applied toward departmental major or minor elective requirements. May be repeated for credit. P/NP or letter grading.

**193. Readings/Speaker Series Seminars: Chicana/Chicano Studies and Central American Studies (1)** (Formerly numbered Chicana and Chicano Studies 193.) Seminar, one hour. Limited to undergraduate Colloquia Series students. Reading of journal articles associated with speaker topics to enliven postcolloquia discussions. May not be applied toward departmental major or minor elective requirements. May be repeated for credit. P/NP grading.

**194. Research Group Seminars: Chicana/Chicano Studies and Central American Studies (2)** (Formerly numbered Chicana and Chicano Studies 194.) Seminar, one hour. Designed for undergraduate students who are part of research group. Discussion of current literature in field or of research of faculty members or students. Use of specific research method on selected topic. May be repeated for credit with topic change. P/NP grading.

**195. Community Internships in Chicana/Chicano Studies and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 195.) Tutorial, two hours; field placement, eight hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Comparative Approaches to Community and Corporate Internships (4)** (Formerly numbered Chicana and Chicano Studies M195CE.) (Same as African American Studies M195CE, American Indian Studies M195CE, Asian American Studies M195CE, and Gender Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

**196. Research Apprenticeship in Chicana/Chicano Studies and Central American Studies. (2 to 4)** (Formerly numbered Chicana and Chicano Studies 196.) Tutorial, three hours per week per unit. Requisite: course 10A or 10B. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. Participation in all aspects of research project, including library research, reading materials, and compilation of data, with scheduled meetings throughout term with faculty mentor for dis-

cussion of project. May not be applied toward departmental major or minor requirements. May be repeated under different contract; consult department. Individual contract required. P/NP grading.

**197. Individual Studies in Chicana/Chicano Studies and Central American Studies. (2 to 4)** (Formerly numbered Chicana and Chicano Studies 197.) Tutorial, four hours. Requisites: courses 10A, 10B. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**197C. Individual Capstone Studies (2)** (Formerly numbered Chicana and Chicano Studies 197C.) Tutorial, one hour. Requisites: courses 10A and 10B, or 101. Limited to departmental junior/senior majors. Guided study led by faculty supervisor. Instructor meets with student to help design culminating capstone project so it conforms to departmental capstone project guidelines. Must be taken in conjunction with one upper-division departmental course. May not be repeated for credit. Individual contract required. Letter grading.

**198A. Honors Research in Chicana/Chicano and Central American Studies: Thesis Conceptualization (2)** (Formerly numbered Chicana and Chicano Studies 198A.) Tutorial, one hour. Requisites: courses 10A, 10B, 101, and 89 or 189. Limited to junior/senior honors program students. Conceptualization and formulation of project in Fall Quarter under direct supervision of faculty member. Preliminary data collection on topic and production of proposal for thesis required. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in Chicana/Chicano and Central American Studies: Annotated Bibliography/Literature Review (2)** (Formerly numbered Chicana and Chicano Studies 198B.) Tutorial, one hour. Requisite: course 198A. Limited to junior/senior honors program students. Development of research skills in Winter Quarter to produce extensive annotated bibliography or literature review on thesis topic. Weekly meetings with faculty member to discuss research and develop outline, argument, and structure of thesis. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in Chicana/Chicano and Central American Studies: Writing and Revision (2)** (Formerly numbered Chicana and Chicano Studies 198C.) Tutorial, one hour. Requisite: course 198B. Limited to junior/senior honors program students. Writing, revision, and completion of departmental honors thesis in Spring Quarter to specification and satisfaction of thesis committee. Public presentation and defense of thesis required. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Chicana/Chicano and Central American Studies (2 to 4)** (Formerly numbered Chicana and Chicano Studies 199.) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Theoretical Paradigms in Chicana/Chicano and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 200.) Seminar, three hours. Limited to graduate students. Examination of several approaches and important theoretical frameworks in field of Chicana and Chicano studies. Exploration of changes that have taken place around four key theoretical areas—coloniality, nationhood, inequality studies, and genders and sexualities. S/U or letter grading.

**201. Activist Scholarship and Intersectional Methodologies Seminar (4)** (Formerly numbered Chicana and Chicano Studies 201.) Seminar, three hours. Limited to graduate students. Exploration of four critical epistemologies, or schools of thought, that employ intersectional methodologies as basis for social action research—Chicana/Chicano cultural studies, Chicana feminism, queer studies, and critical legal studies. S/U or letter grading.

**202. Qualitative Methods in Study of Chicanas/Chicanos and Latinas/Latinos (4)** (Formerly numbered Chicana and Chicano Studies 202.) Seminar, three hours. Limited to graduate students. Methods course that takes students through entire empirical research cycle. Students required to collectively develop interesting research questions, conduct qualitative research, analyze original data, and write final papers that contextualize findings within existing social scientific literature. To answer research questions, students select from theoretical frameworks discussed in readings. S/U or letter grading.

**206. Politics of Hood (4)** (Formerly numbered Chicana and Chicano Studies M206.) (Same as Public Policy M231.) Seminar, three hours. Limited to graduate students. Investigation of root causes and consequences of critical

problems impacting people who live in hood including poverty, incarceration, gentrification, welfare, public education, health disparities, and segregation, among other political issues. S/U or letter grading.

**207. Racial Geographies (4)** (Formerly numbered Chicana and Chicano Studies 207.) Seminar, three hours. Interdisciplinary examination of spatial turn in social sciences and humanities. Drawing upon readings from geography, history, ethnic, and American studies, use of analytic of space to investigate questions of race in U.S. Focus on production of space, geographic approaches to racial formation, and anti-racist, place-based struggles. Study foregrounds intersections with Chicana and Chicano studies and models of relational racialization. S/U or letter grading.

**208. Research Design and Methods in Chicana/Chicano Studies (4)** (Formerly numbered Chicana and Chicano Studies 208.) Seminar, four hours. Research design and methodologies in Chicana/Chicano studies grounded in perspective Chicana/Chicano studies; perspective. Study of knowledge production and scholarship in Chicana/Chicano studies; how it can be done, and how it can be evaluated. Includes critical comparison with Chicanology and identity studies, and associated biases, flaws, and fatal flaws. S/U or letter grading.

**209. Service Learning: Theory and Praxis (4)** (Formerly numbered Chicana and Chicano Studies 209.) Seminar, three hours. Limited to graduate students. Examination of approaches and theories that underpin service learning and exploration of ways in which service learning can be utilized in variety of academic disciplines (second and foreign language instruction, education, ethnic studies, labor studies, women's studies, public health, literature, public art, political science, etc.). Creation of research proposal for use of service learning in one course (real or hypothetical) in academic discipline of student's choice. S/U or letter grading.

**210. Queer of Color Genealogies (4)** (Formerly numbered Chicana and Chicano Studies 210.) Seminar, three hours. Art of community-making by those multiply marginalized by categories of race, gender, class, citizenship, and gender nonconformity and disposed of normative forms of belonging. Tracking of genealogies of queer of color communities through alternative archives of desire, love, affect, memory, performance, and politics. Reading about queer of color theories and practices, with special focus on oral history, digital storytelling, and forms of social documentation methodologies. S/U or letter grading.

**211. Immobilizing Immigrants: Detention and Deportation in U.S. (4)** (Formerly numbered Chicana and Chicano Studies 211.) Seminar, three hours. History of detention and deportation policy in U.S. as it affects Mexicans and other Latinas/Latinos. Consolidation of this legal authority and its deployment across 20th century. S/U or letter grading.

**C212. Latina/Latino Families in U.S. (4)** (Formerly numbered Chicana and Chicano Studies C212.) Lecture, four hours; discussion, one hour (when scheduled). Study of how intersections of race, class, and gender help shape experiences of Latina/Latino families in U.S. society and how these intersections also help shape individual experiences within families. Examination of family, race, class, and gender as sociological concepts. Readings about family experiences of Mexican and Central American groups in U.S., with special emphasis on immigrants, and analysis of how race, class, and gender together play important roles in shaping these experiences. Discussion of roles of structure and space for agency in each context. Concurrently scheduled with course C107. Letter grading.

**213. Asian-Latinos (4)** (Formerly numbered Chicana and Chicano Studies M213.) (Same as Asian American Studies M213.) Seminar, three hours. Limited to graduate students. Examination of historical and contemporary populations of Asian-Latinos in Latin America and U.S. Review and critique of nascent literature on Asian-Latinos and analysis of experience of Asian-Latinos utilizing theoretical frameworks of *mestizaje*, critical mixed-race theory, and transnationalism. Coverage of often-overlooked Asian contributions to Latin American and Chicano/Latino culture and identity and exploration of unique experience of mixed-race Asian-Latinos. S/U or letter grading.

**CM214. Chicana Feminism (4)** (Formerly numbered Chicana and Chicano Studies CM214.) (Same as Gender Studies CM232A.) Lecture, four hours. Enforced requisite: course 10A or Gender Studies 10. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM110. S/U or letter grading.

**C215. Transnational Women's Organizing in Americas (4)** (Formerly numbered Chicana and Chicano Studies C215.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local ac-



tors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. Concurrently scheduled with course CM147. Letter grading.

**216. Production of Immigrant Illegality (4)** (Formerly numbered Chicana and Chicano Studies 216.) Seminar, three hours. Limited to graduate students. Based mostly on U.S., exploration of dynamic field of illegality studies. Study of history of immigration policies and enforcement practices along with key empirical and theoretical contributions to understand how immigrant illegality is produced. S/U or letter grading.

**217. U.S. Central American Racial Constructs and Cultural Diversity (4)** (Formerly numbered Chicana and Chicano Studies 217.) Seminar, three hours. Limited to graduate students. Exploration of indigenism, indigeneity, afro-indigeneity, Blackness, mestizaje, mulattaje, ladinization and other racial-gendered constructs in Central America by critically engaging scholarship, census data, and oral histories to understand Central American communities in U.S. Analysis on their origins and how these racial-gendered stratifications were naturalized through cultural practices. Engages cultural practices as strategies of survival for populations working against historical erasure especially enacted by nation-state. For example, why is Blackness erased in national narrative of El Salvador, why problematize Costa Rica's claim of racial equality, why and how do Garifuna communities assert their indigeneity while also engaging multiple practices and discourses of Blackness? Examination also of how these communities face genocide, ethnocide, feminicide, and strategies of racial passing and resistance. S/U or letter grading.

**218. Latinx Photoethnography (4)** (Same as Anthropology M239R.) Seminar, three hours. Hands-on introduction to using photography as ethnographic field method. Introduction to basics of photography with review of key and relevant literature from fields of sociocultural anthropology, visual anthropology, and photographic theory. Exploration of technical, ethical, and aesthetic aspects of picture making and their relationship to anthropological field methods, participant observation, and issues of representation—especially among Latinx communities. Student-lead discussions of assigned readings and in-class hands-on learning. Quarter-long photoethnography project focused on Latinx issues in greater Los Angeles. S/U or letter grading.

**232. Aesthetics of Place in Chicana/Chicano Expressive Culture (4)** (Formerly numbered Chicana and Chicano Studies 232.) Seminar, three hours. Examination of several place-based aesthetic traditions, including indigenous, Santería, diasporic, and Aztlán aesthetics, in Chicana/Chicano visual art, film, performance, and literature. Special focus on place as site of identity, history/memory, and creative production. S/U or letter grading.

**233. Community Cultural Development in Public Art: From Neighborhood to Global (4)** (Formerly numbered Chicana and Chicano Studies 233.) Seminar, three hours; laboratory, one hour. Designed for graduate students. Artist approaches to transformations of local and global communities through aesthetic practices in visual arts, spoken word, visual performance, music, and dance that include participatory audience inclusion and foster civic dialogue and community advocacy and activism. Issues of cultural democracy based in cultural retention and affirmation. Case studies of artist projects in community cultural development provide contemporary examples of evolving field of work and basis for critical analysis. S/U or letter grading.

**234. New Social Media and Activist Art (4)** (Formerly numbered Chicana and Chicano Studies 234.) Studio, four hours. Limited to graduate students. Hands-on learning and production experience as essential to full understanding of modern media. Promotion of pragmatic style of humanistic and social scientific scholarship that prepares students to think critically and productively about media form, content, and context while learning to effectively use social media. S/U or letter grading.

**C235. Bilingual Writing Workshop (4)** (Formerly numbered Chicana and Chicano Studies C235.) Seminar, four hours. Limited to graduate students. Writing sample required; access to course web page mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression through genre of short fiction. Bilingualism as both politics and aesthetics to be central theme. Discussion and analysis of Chicana/Chicano and Latina/Latino short story collections. Peer critique of weekly writing assignments. Emphasis on narrative techniques such as characterization, plot, conflict, setting, point of view, and dialogue, and magical realism as prevailing Chicanesque/Latinesque style. Some attention to process of manuscript preparation, public reading, and publication. Concurrently scheduled with course CM135. Letter grading.

**236. Latinx Noir and City at Night (4)** (Formerly numbered Chicana and Chicano Studies 236.) Seminar, three hours. Noir literary and cinematic genre is characterized by gritty realism, social disorder, violence, and nocturnal meanderings in darkest, meanest streets of urban metropolis. Examination of Latinx representations of Los Angeles in mainstream and Chicana/Latinx literature and film. S/U or letter grading.

**237. Hemispheric and Transnational Approaches to Contemporary Art in Americas (4)** (Formerly numbered Chicana and Chicano Studies M237.) (Same as Art History M243.) Seminar, three hours. Maps current state and future of research, teaching, and museum practice in contemporary art of Americas, with focus on hemispheric and transnational approaches. Study of influential theoretical texts from literary studies and critical examination of recent publications in arts, including museum exhibition catalog, as hemispheric and transnational approach to contemporary Latinx and Latin American arts is posited. Focus intersects with other related topics, including art post-1968; comparative indigenities in Americas; art, globalism, and biennials; decolonial turn; transnational feminisms; and New American counter narratives. S/U or letter grading.

**238. New Directions in Chicana and Latinx Art (4)** (Formerly numbered Chicana and Chicano Studies 238.) Seminar, three hours. Focus on current state and future of research, teaching, and museum practice in Chicana and Latinx art history. Examination of various topics, including decolonial methodologies; national versus global perspectives on Latinx art; indigeneity and Chicana art; politics and publics of prints and graphics; public murals and monuments; race and place in Los Angeles; queer and feminist approaches to Chicana and Latinx art; and collecting and display of Chicana art by museums, galleries, and private collectors. Particular emphasis on decolonial, feminist, critical race, and poststructuralist approaches. Students prepare weekly readings for discussion, and complete final presentation and research project. Parameters of project to be determined in consultation with professor. Examples include original research paper, teaching portfolio, comprehensive historiographic review, or creative project. S/U or letter grading.

**239. Digital Methods for Research and Presentations (4)** (Formerly numbered Chicana and Chicano Studies 239.) Laboratory, four hours. Students learn how to think about one's own research in visual way, and how to develop digital skills to produce images and videos for more professional and compelling research presentations and job talks that do not infringe upon copyrighted materials. Students learn how to locate high-resolution images, and how to use Photoshop to manipulate files and create original illustrations. Students learn how to use Prezi as oral presentation software and archiving method for gathering and organizing visual materials on their research. Each student receives personalized guidance based on specificity of their research, for example, mapping software, or video editing for oral history projects, or subtitling/translating for documentary videos. Students learn how to use available applications such as iMovie or QuickTime to produce short videos that can be incorporated into their presentations. For their final project, students are required to present mock conference talk using their original manipulated images and short videos. S/U or letter grading.

**240. U.S. Central Americans Making Art and Memory (4)** (Formerly numbered Chicana and Chicano Studies 240.) Seminar, three hours. Limited to graduate students. Memory is trope through which U.S. Central American writers, performance, visual, media, and public artists and activists communicate across social, national, and phenomenological borders. Through contemporary theories on memory and narrativizing, introduction to U.S. Central American writers, artists, cultural activists, and historical figures. Exploration of issues including civil war, postwar, race, class, sex, gender, globalization, immigration, and identity formations. Students have option to create art, media projects, and essays that interpret readings as these relate to their lives vis-à-vis U.S. Central American cultural production. S/U or letter grading.

**247. Chicano Literature (4)** (Formerly numbered Chicana and Chicano Studies M247.) (Same as Spanish M247.) Lecture, three hours. Study of major movements and authors of Mexican American literature. S/U or letter grading.

**C251. Chicana and Latin American Women's Narrative (4)** (Formerly numbered Chicana and Chicano Studies C251.) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Analyses, comparisons, and discussion of narrative literary production of U.S. Chicana writers and their Latin American counterparts in English and Spanish, with particular focus on how each group deals with gender, ethnic, and class issues. Concurrently scheduled with course C141. Letter grading.

**252. Cultural Representations in Americas (4)** (Formerly numbered Chicana and Chicano Studies 252.) Seminar, three hours. Analysis of Latina/Latino and Latin American fictional and nonfictional narratives and films, with emphasis on gender issues, diasporas, and global transformation. Use of aesthetic and formal analytical perspectives and several conceptual frameworks—cultural studies, postcolonial studies, neoliberalism, intersectionality, and feminist theories. Study of these cultural productions as expression of intersectional-

ities and differences among Latina/Latino and Latin American cultural workers, as well as among diverse populations and changing experiences their works refer to. S/U or letter grading.

**253. Tenth Muses of Chicana Theory (4)** (Formerly numbered Chicana and Chicano Studies 253.) Seminar, three hours. Chicana lesbian feminist theory in its multiple and historical manifestations, beginning in 17th century with early proto-feminist work of Sor Juana Inés de la Cruz, Mexican nun/scholar/poet known world over as first feminist of Americas. Exploration of Sor Juana's feminist legacy in 20th-century Chicana lesbian and Chicana feminist theorists and scholars, such as Gloria Anzaldúa, Cherrie Moraga, Emma Pérez, Chela Sandoval, Norma Alarcón, and Alicia Arrizón. Discussion of foundational theoretical concepts such as Anzaldúa's foundational concepts of mundo zurdo, nepantla, mestiza consciousness, and *conocimiento*; Pérez's *sitio y lengua* and decolonial imaginary; Sandoval's methodology of oppressed, differential consciousness, and hermeneutics of love; and Arrizón's postcolonial queer *mestizaje*. How to apply several of these theories in decolonization of one revered cultural icon, la Virgen de Guadalupe. S/U or letter grading.

**254. Los Angeles: History, Space, and Culture (4)** (Formerly numbered Chicana and Chicano Studies 254.) Seminar, three hours. Exploration of significance of Los Angeles as birthplace of Chicana/Chicano identity and historical development of Mexican American culture and community in Southern California. Historiography of Latino Los Angeles from Spanish conquest to present, with emphasis on labor, immigration, art culture, and politics. Survey of current literature on socioeconomic condition of Mexican Americans in Los Angeles and burgeoning culture and politics of Latino Los Angeles at outset of 21st century. S/U or letter grading.

**255. Mass Media Research Methods (4)** (Formerly numbered Chicana and Chicano Studies 255.) Seminar, three hours. Limited to graduate students. Survey of range of qualitative and quantitative communication methods and findings regarding Chicana/Chicano and Latina/Latino topics for all media types in both English and Spanish. Critical evaluation of research findings across this expansive field and design of complex research problems. S/U or letter grading.

**C256. Understanding Whiteness in American History and Culture (4)** (Formerly numbered Chicana and Chicano Studies C256.) Lecture, three hours; discussion, one hour (when scheduled). Designed for graduate students. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of white identity and explore its significance to historical construction of race class in American history. Concurrently scheduled with course CM182. Letter grading.

**257. Chicana/o and Intersectional Marxisms (4)** (Formerly numbered Chicana and Chicano Studies M257.) (Same as Public Policy M232.) Seminar, three hours. Examination of relationship between Marxism, intersectionality, and early-Chicana/o Marxist influenced intellectual thought. Focus on key debates and texts on connections between race, gender, sexuality, and capitalism. Review of key articles and books examining Chicana/o identity, labor, family, sexuality, and activism through Marxist theoretical framework. S/U or letter grading.

**258. Laughter, Political Humor, and Social Control (4)** (Formerly numbered Chicana and Chicano Studies 258.) Seminar, three hours. Limited to graduate students. Investigation of power of political humor, one social practice that constructs discriminatory hierarchies in interpersonal settings and mass media. With goal of developing set of principled methods to investigate its manifestations, reading of outstanding humanistic contributions across history of its social function and power, development of classification of types and settings of political humor, and critical evaluation of recent social scientific models of its nature. S/U or letter grading.

**259. Critical Discourse Analytic Methods (4)** (Formerly numbered Chicana and Chicano Studies 259.) Seminar, three hours. Limited to departmental graduate students. Two critical discourse analytic (CDA) methods taught to document language of public figures. Student teams employ one method (conceptual metaphor CDA or discourse historical approach) to analyze actual public official's own discourse surrounding one controversial issue. Empirical study of discourses that are based on independently developed research enterprises can be valuable tool for variety of graduate student research. S/U or letter grading.

**C274. Language Politics and Policies in U.S.: Comparative History (4)** (Formerly numbered Chicana and Chicano Studies C274.) Lecture, four hours. Historical overview of national and institutional language policies, especially schooling, in U.S. as context to understanding social, legal, and political constraints on bilingualism. Definitions and development of language policy and planning, history of general and educational language policies in U.S., demo-

graphic profile of language diversity, and current language and educational policy issues in U.S. Comparisons with selected international cases. Concurrently scheduled with course C179. S/U or letter grading.

**C276. Health in Chicano/Latino Population (4)** (Formerly numbered Chicana and Chicano Studies C276.) Lecture, four hours; discussion, one hour. Designed for graduate students. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Concurrently scheduled with course CM106. Letter grading.

**C277. Latino Social Policy (4)** (Formerly numbered Chicana and Chicano Studies C277.) Lecture, three hours; discussion, one hour (when scheduled). Examination of social welfare of Latinos (Chicanos, Puerto Ricans, and Cubans) in U.S. through assessment and critical analysis of social policy issues affecting them. Survey of social, economic, cultural, and political circumstances affecting ability of Latinos to access public benefits and human services. Concurrently scheduled with course CM177. Letter grading.

**278. Immigration Policy and Activism (4)** (Same as Public Policy M230.) Seminar, three hours. Highlighting roles of race, gender, sexuality, and citizenship status, exploration of how immigrant rights activists organize for legalization and against detention, deportation, and border militarization. Letter grading.

**279. Globalization and Transnationalism (4)** (Formerly numbered Chicana and Chicano Studies 279.) Seminar, three hours. Interdisciplinary seminar that integrates political-economical, historical-sociological, and anthropological-cultural perspectives to help students develop critical political-economical analysis of interplay between globalization (of flows of people, material goods, information, and political-cultural influences) and localized transnational dynamics that together are giving meaning and constructing new social identities and strategies for struggle throughout world. S/U or letter grading.

**280. Urban Social Inequality (4)** (Formerly numbered Chicana and Chicano Studies 280.) Seminar, three hours. Examination of several key social and urban inequalities in U.S. Survey of three key contemporary issues of inequality primarily from sociology and urban planning/studies: income distribution (poverty), work and employment (labor), and neighborhoods (space/geography). Through wide range of methods, approaches, and theoretical frameworks examined, exposure to key research on inequality. S/U or letter grading.

**281. Central American Migration and Integration (4)** (Formerly numbered Chicana and Chicano Studies 281.) Seminar, three hours. Through empirical research cycle and informed with relevant theoretical frameworks, students develop research questions based on migration and integration experiences of Central American immigrants in greater Los Angeles area. Students conduct qualitative research, analyze original data, and write final papers that contextualize findings within existing social scientific literature. S/U or letter grading.

**282. Chicana/Chicano Legal History (4)** (Formerly numbered Chicana and Chicano Studies 282.) Seminar, three hours. Legal history of Chicanas/Chicanos in U.S. from mid-19th century to present, with emphasis on critical race theory. Examination of landmark legislation and key appellate decisions that have impacted Chicano/Latino community. Topics include critical race theory, Treaty of Guadalupe-Hidalgo, legal construction of Mexican American racial identity, historic educational segregation, contemporary educational issues, jury rights, Chicano movement, and undocumented immigration. S/U or letter grading.

**289. Studies in Chicana/Chicano Literature (4)** (Formerly numbered Chicana and Chicano Studies M289.) (Same as English M261.) Seminar, three hours. Intensive research and study of major themes, authors, and issues in Chicana/Chicano literature and culture. Examination of political, aesthetic, economic, and cultural context that emerges in Chicana/Chicano discourse; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**291. Variable Topics Research Seminars: Chicana/o and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 291.) Seminar, three hours. Limited to graduate students. Research seminar organized around readings and engaged discussion of critical topic of interest in field. Exploration of issue, its theoretical implication for field, and practical implications for communities. Topics vary according to participating faculty members. Final research project required. May be repeated for credit with consent of director of graduate studies. S/U or letter grading.

**495. Learner-Centered Teaching in Chicana/Chicano and Central American Studies (4)** (Formerly numbered Chicana and Chicano Studies 495.) Seminar, four hours. Designed for graduate students and required of all new department teaching apprentices. Interactive forum for discussing learner-centered teaching in Chicana/Chicano studies. Exploration of diverse classroom strategies and pedagogical techniques specific to interdisciplinary field. Topics in-

clude preparing for discussion sections, promoting discussion among students, using class websites, office hours, grading, and campus resources. May be repeated once for credit. S/U grading.

**595. Research and Preparation for MA Thesis (4 to 12)** (Formerly numbered Chicana and Chicano Studies 595.) Tutorial, to be arranged. Limited to departmental graduate students who have completed all MA coursework requirements. Research for and preparation of MA thesis under direction of thesis committee chair. May not be applied toward MA degree requirements. May be repeated for maximum of 12 units. S/U grading.

**596. Directed Individual Study or Research (4 to 12)** (Formerly numbered Chicana and Chicano Studies 596.) Tutorial, to be arranged. Directed individual research and study in area related to Chicana/Chicano studies or subjects not offered as regular courses, arranged individually by student and instructor. May be repeated for maximum of 12 units. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations (2 to 12)** (Formerly numbered Chicana and Chicano Studies 597.) Tutorial, to be arranged. Limited to departmental graduate students. Reading and preparation for PhD qualifying examinations. Mandatory and supplemental reading lists prepared by student advisory committees. May be repeated for maximum of 12 units. S/U grading.

**599. Research for PhD Dissertation (4 to 12)** (Formerly numbered Chicana and Chicano Studies 599.) Tutorial, to be arranged. Limited to PhD students who have passed qualifying examinations. Research for and preparation of PhD dissertation under direction of dissertation committee chair. May not be applied toward PhD degree requirements. May be repeated for maximum of 8 units. S/U grading.

# Chemical and Biomolecular Engineering

## Chemical Engineering Courses

### Lower Division

**2. Technology and Environment (4)** Lecture, four hours; outside study, eight hours. Natural and anthropogenic flows of materials at global and regional scales. Case studies of natural cycles include global warming (CO<sub>2</sub> cycles), stratospheric ozone depletion (chlorine and ozone cycles), and global nitrogen cycles. Flow of materials in industrial economies compared and contrasted with natural flows; presentation of lifecycle methods for evaluating environmental impact of processes and products. P/NP or letter grading.

**10. Introduction to Chemical and Biomolecular Engineering (1)** Lecture, one hour; outside study, two hours. General introduction to field of chemical and biomolecular engineering. Description of how chemical and biomolecular engineering analysis and design skills are applied for creative solution of current technological problems in production of microelectronic devices, design of chemical plants for minimum environmental impact, application of nanotechnology to chemical sensing, and genetic-level design of recombinant microbes for chemical synthesis. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**45. Biomolecular Engineering Fundamentals (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Recommended requisites: Chemistry 20A, 20L, 30A, 30L. Intended for those students who have not taken Life Sciences 2, 3, and Chemistry 153A. Fundamentals of modern biomolecular engineering. Topics include structure and function of biomolecules, central dogma of molecular biology, cellular information and energy processing, and experimental methods, with strong emphasis on applications in medicine, industry, and bioenergy. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Fundamentals of Chemical and Biomolecular Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20B, 20L (not enforced), Mathematics 32B (may be taken concurrently), Physics 1A. Introduction to analysis and design of industrial chemical processes. Material and energy balances. Introduction to programming in MATLAB. Letter grading.

**101A. Transport Phenomena I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Mathematics 33A, 33B. Enforced corequisite: course 109. Introduction to analysis of fluid flow in chemical, biological, materials, and molecular processes. Fundamentals of momentum transport, Newton law of viscosity, mass and momentum conservation in laminar flow, Navier/Stokes equations, and engineering analysis of flow systems. Letter grading.

**101B. Transport Phenomena II: Heat Transfer (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101A. Introduction to analysis of heat transfer in chemical, biological, materials, and molecular processes. Fundamentals of thermal energy transport, molecular-level heat transfer in gases, liquids, and solids, forced and free convection, radiation, and engineering analysis of heat transfer in process systems. Letter grading.

**101C. Mass Transfer (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101B. Introduction to analysis of mass transfer in systems of interest to chemical engineering practice. Fundamentals of mass species transport, Fick law of diffusion, diffusion in chemically reacting flows, interphase mass transfer, multicomponent systems. Letter grading.

**102A. Thermodynamics I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to thermodynamics of chemical and biological processes. Work, energy, heat, and first law of thermodynamics. Second law, extremum principles, entropy, and free energy. Ideal and real gases, property evaluation. Thermodynamics of flow systems. Applications of first and second laws in biological processes and living organisms. Letter grading.

**102B. Thermodynamics II (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 102A. Fundamentals of classical and statistical thermodynamics in chemical and biological sciences. Phase equilibria in single and multicomponent systems. Thermodynamics of ideal and nonideal solutions. Chemical reaction equilibria. Statistical ensembles and partition functions. Statistical thermodynamics of ideal gases. Intermolecular interactions and liquid state. Thermodynamics of polymers and biological macromolecules. Letter grading.

**103. Separation Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 100, 101B. Application of principles of heat, mass, and momentum transport to design and operation of separation processes such as distillation, gas absorption, filtration, and reverse osmosis. Letter grading.

**104A. Chemical and Biomolecular Engineering Laboratory I (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: course 100. Enforced corequisite: course 101B. Recommended: course 102B. Investigation of basic transport phenomena in 10 predetermined experiments, collection of data for statistical analysis and individually written technical reports and group presentations. Design and performance of one original experimental study involving transport, separation, or another aspect of chemical and biomolecular engineering. Basic statistics: mean, standard deviation, confidence limits, comparison of two means and of multiple means, single and multiple variable linear regression, and brief introduction to factorial design of experiments. Oral and poster presentations. Technical writing of sections of technical reports and their contents; writing clearly, concisely, and consistently; importance of word choices and punctuation in multicultural engineering environment and of following required formatting. Letter grading.

**104B. Chemical and Biomolecular Engineering Laboratory II (6)** Lecture, four hours; laboratory, eight hours; outside study, four hours; other, two hours. Enforced requisites: courses 101C, 103, 104A. Course consists of four experiments in chemical engineering unit operations, each of two weeks duration. Students present their results both written and orally. Written report includes sections on theory, experimental procedures, scaleup and process design, and error analysis. Letter grading.

**104C. Semiconductor Processing (3)** Lecture, four hours; outside study, five hours. Enforced requisite: course 101C. Enforced corequisite: course 104CL. Basic engineering principles of semiconductor unit operations, including fabrication and characterization of semiconductor devices. Investigation of processing steps used to make CMOS devices, including wafer cleaning, oxidation, diffusion, lithography, chemical vapor deposition, plasma etching, metallization, and statistical design of experiments and error analysis. Presentation of student results in both written and oral form. Letter grading.

**104CL. Semiconductor Processing Laboratory (3)** Laboratory, four hours; outside study, five hours. Enforced requisite: course 101C. Enforced corequisite: course 104C. Series of experiments that emphasize basic engineering principles of semiconductor unit operations, including fabrication and characterization of semiconductor devices. Investigation of processing steps used to make CMOS devices, including wafer cleaning, oxidation, diffusion, lithography, chemical vapor deposition, plasma etching, and metallization. Hands-on device testing includes transistors, diodes, and capacitors. Letter grading.

**104D. Molecular Biotechnology Laboratory: From Gene to Product (6)** Lecture, two hours; laboratory, eight hours; outside study, eight hours. Enforced requisites: courses 101C, C125. Integration of molecular and engineering techniques in modern biotechnology. Cloning of protein-coding gene into plasmid, transformation of construct into *E. coli*, production of gene product in bioreactor, downstream processing of bioreactor broth to purify recombinant protein, and characterization of purified protein. Letter grading.

**106. Chemical Reaction Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 100, 101C, 102B. Fundamentals of chemical kinetics and catalysis. Introduction to analysis and design of homogeneous and heterogeneous chemical reactors. Letter grading.

**107. Process Dynamics and Control (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 101C, 103 (or C125), 106 (or C115). Principles of dynamics modeling and start-up behavior of chemical engineering processes. Chemical process control elements. Design and applications of chemical process computer control. Letter grading.

**108A. Process Economics and Analysis (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 103 (or C125), 104A, 106 (or C115). Integration of chemical engineering fundamentals such as transport phenomena, thermodynamics, separation operations, and reaction engineering and simple economic principles for purpose of designing chemical processes and evaluating alternatives. Letter grading.

**108B. Numerical Process Computer-Aided Design and Analysis (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 103 (or C125), 106 (or C115), 108A, Civil and Environmental Engineering M20 (or Mechanical and Aerospace Engineering M20). Introduction to application of some mathematical and computing methods to chemical engineering design problems; use of simulation programs as automated method of performing steady state material and energy balance calculations. Letter grading.

**109. Numerical and Mathematical Methods in Chemical and Biological Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Civil and Environmental Engineering M20 or Mechanical and Aerospace Engineering M20. Enforced corequisite: course 101A. Numerical methods for computation of solution of systems of linear and nonlinear algebraic equations, ordinary differential equations, and partial equations. Chemical and biomolecular engineering examples used throughout to illustrate application of these methods. Use of MATLAB as platform (programming environment) to write programs based on numerical methods to solve various problems arising in chemical engineering. Letter grading.

**110. Intermediate Engineering Thermodynamics (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 102B. Principles and engineering applications of statistical and phenomenological thermodynamics. Determination of partition function in terms of simple molecular models and spectroscopic data; nonideal gases; phase transitions and adsorption; non-equilibrium thermodynamics and coupled transport processes. Letter grading.

**C111. Cryogenics and Low-Temperature Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of cryogenics and cryoengineering science pertaining to industrial low-temperature processes. Basic approaches to analysis of cryofluids and envelopes needed for operation of cryogenic systems; low-temperature behavior of matter, optimization of cryosystems and other special conditions. Concurrently scheduled with course C211. Letter grading.

**C112. Polymer Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 101A, Chemistry 30A. Formation of polymers, criteria for selecting reaction scheme, polymerization techniques, polymer characterization. Mechanical properties. Rheology of macromolecules, polymer process engineering. Diffusion in polymeric systems. Polymers in biomedical applications and in microelectronics. Concurrently scheduled with course C212. Letter grading.

**113. Air Pollution Engineering (4)** Lecture, four hours; preparation, two hours; outside study, six hours. Enforced requisites: courses 101C, 102B. Integrated approach to air pollution, including concentrations of atmospheric pollutants, air pollution standards, air pollution sources and control technology, and relationship of air quality to emission sources. Links air pollution to multimedia environmental assessment. Letter grading.

**CM114. Electrochemical Processes (4)** (Same as Materials Science CM163.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 102B, Mechanical and Aerospace Engineering 105A (or Materials Science 130). Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes. Primary emphasis on fundamental approach to analyze electrochemical processes. Specific topics include electrochemical reactions on metal and semiconductor surfaces, electrodeposition, electroless deposition, electrosynthesis, fuel cells, aqueous and non-aqueous batteries, solid-state electrochemistry. May be concurrently scheduled with course CM214. Letter grading.

**C115. Biochemical Reaction Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. May be concurrently scheduled with course CM215. Letter grading.

**C116. Surface and Interface Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to surfaces and interfaces of engineering materials, particularly catalytic surface and thin films for solid-state electronic devices. Topics include classification of crystals and surfaces, analysis of structure and composition of crystals and their surfaces and inter-

faces. Examination of engineering applications, including catalytic surfaces, interfaces in microelectronics, and solid-state laser. May be concurrently scheduled with course C216. Letter grading.

**C118. Multimedia Environmental Assessment (4)** Lecture, four hours; discussion, one hour; preparation, two hours; outside study, five hours. Recommended requisites: courses 101C, 102B. Pollutant sources, estimation of source releases, waste minimization, transport and fate of chemical pollutants in environment, intermedia transfers of pollutants, multimedia modeling of chemical partitioning in environment, exposure assessment and fundamentals of risk assessment, risk reduction strategies. Concurrently scheduled with course C218. Letter grading.

**C119. Pollution Prevention for Chemical Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C219. Letter grading.

**C121. Membrane Science and Technology (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 101A, 101C, 103. Fundamentals of membrane science and technology, with emphasis on separations at micro, nano, and molecular/angstrom scale with membranes. Relationship between structure/morphology of dense and porous membranes and their separation characteristics. Use of nanotechnology for design of selective membranes and models of membrane transport (flux and selectivity). Examples provided from various fields/applications, including biotechnology, microelectronics, chemical processes, sensors, and biomedical devices. Concurrently scheduled with course C221. Letter grading.

**C124. Cell Material Interactions (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 45. Introduction to design and synthesis of biomaterials for regenerative medicine, in vitro cell culture, and drug delivery. Biological principles of cellular microenvironment and design of extracellular matrix analogs using biological and engineering principles. Biomaterials for growth factor, and DNA and siRNA delivery as therapeutics and to facilitate tissue regeneration. Use of stem cells in tissue engineering. Concurrently scheduled with course C224. Letter grading.

**C125. Bioprocess Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced corequisite: course 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Concurrently scheduled with course CM225. Letter grading.

**C126. Viruses and Biotechnology (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course CM145. Introduction of viruses and their varied roles in biotechnology, from utilization of viral enzymes to biotechnologies used to combat viral infectious diseases. Basic concepts of virology. Focus on use of viruses, including bacteriophages, and viral proteins as tools in biotechnology. Examples include bacteriophage display, virus-based nanomaterials, and viral vectors for gene delivery, and vaccines. Covers case studies of viral diseases and biotechnological strategies for diagnosis, prevention, and treatment. Examples include human immunodeficiency virus and coronaviruses. Students conduct literature searches and write paper on relevant topic of their choice. Concurrently scheduled with course C226. Letter grading.

**CM127. Synthetic Biology for Biofuels (4)** (Same as Chemistry CM127.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Chemistry 153A. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM227. Letter grading.

**C128. Hydrogen (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: Chemistry 20A. Electronic, physical, and chemical properties of hydrogen. Various methods of production, including production through methane steam reforming, electrolysis, and thermochemical cycles. Description in depth of several uses of hydrogen, including hydrogen combustion and hydrogen fuel cells. Concurrently scheduled with course C228. Letter grading.

**C135. Advanced Process Control (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 107. Introduction to advanced process control. Topics include (1) Lyapunov stability for autonomous nonlinear systems including converse theorems, (2) input to state sta-

bility, interconnected systems, and small gain theorems, (3) design of nonlinear and robust controllers for various classes of nonlinear systems, (4) model predictive control of linear and nonlinear systems, (5) advanced methods for tuning of classical controllers, and (6) introduction to control of distributed parameter systems. Concurrently scheduled with course C235. Letter grading.

**C140. Fundamentals of Aerosol Technology (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C240. Letter grading.

**CM145. Molecular Biotechnology for Engineers (4)** (Same as Bioengineering CM145.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 45 or Life Sciences 7C. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM245. Letter grading.

**C146. Systems Biology: Intracellular Network Identification and Analysis (4)** Lecture, four hours; outside study, eight hours. Requisites: course CM145, Mathematics 31A, 31B, 32A, 33B. Systems approach to intracellular network identification and analysis. Transcriptional regulatory networks, protein networks, and metabolic networks. Data from genome sequencing, large-scale expression analysis, and other high-throughput techniques provide bases for systems identification and analysis. Discussion of gene-metabolic network synthesis. Concurrently scheduled with course C246. Letter grading.

**153. Introduction to Microscale and Nanoscale Manufacturing (4)** (Same as Bioengineering M153, Electrical and Computer Engineering M153, and Mechanical and Aerospace Engineering M183B.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern clean-room environment. Letter grading.

**188. Special Courses in Chemical Engineering (4)** Seminar, four hours; outside study, eight hours. Special topics in chemical engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**194. Research Group Seminars: Chemical Engineering (4)** Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. Letter grading.

**199. Directed Research in Chemical Engineering. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation of selected topic under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**200. Advanced Engineering Thermodynamics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 102B. Phenomenological and statistical thermodynamics of chemical and physical systems with engineering applications. Presentation of role of atomic and molecular spectra and intermolecular forces in interpretation of thermodynamic properties of gases, liquids, solids, and plasmas. Letter grading.

**201. Methods of Molecular Simulation (4)** Lecture, four hours; outside study, eight hours. Requisite: course 200 or Chemistry C223A or Physics 215A. Modern simulation techniques for classical molecular systems. Monte Carlo and molecular dynamics in various ensembles. Applications to liquids, solids, and polymers. Letter grading.

**210. Advanced Chemical Reaction Engineering (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 101C, 106. Principles of chemical reactor analysis and design. Particular emphasis on simultaneous effects of chemical reaction and mass transfer on noncatalytic and catalytic reactions in fixed and fluidized beds. Letter grading.

**C211. Cryogenics and Low-Temperature Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Fundamentals of cryogenics and cryoengineering science pertaining to industrial low-temperature processes. Basic approaches to analysis of cryofluids and envelopes needed for operation of cryogenic systems; low-temperature behavior of matter, optimization of cryosystems and other special conditions. Concurrently scheduled with course C111. Letter grading.

**C212. Polymer Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 101A, Chemistry 30A. Formation of polymers, criteria for selecting reaction scheme, polymerization techniques, polymer characterization. Mechanical properties. Rheology of macromolecules, polymer process engineering. Diffusion in polymeric systems. Polymers in biomedical applications and in microelectronics. Concurrently scheduled with course C112. Letter grading.

**CM214. Electrochemical Processes (4)** (Same as Materials Science CM263.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102B, Mechanical and Aerospace Engineering 105A (or Materials Science 130). Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes. Primary emphasis on fundamental approach to analyze electrochemical processes. Specific topics include electrochemical reactions on metal and semiconductor surfaces, electrodeposition, electroless deposition, electrosynthesis, fuel cells, aqueous and non-aqueous batteries, solid-state electrochemistry. May be concurrently scheduled with course CM114. Letter grading.

**CM215. Biochemical Reaction Engineering (4)** (Same as Bioengineering M215.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. May be concurrently scheduled with course C115. Letter grading.

**C216. Surface and Interface Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to surfaces and interfaces of engineering materials, particularly catalytic surface and thin films for solid-state electronic devices. Topics include classification of crystals and surfaces, analysis of structure and composition of crystals and their surfaces and interfaces. Examination of engineering applications, including catalytic surfaces, interfaces in microelectronics, and solid-state laser. May be concurrently scheduled with course C116. Letter grading.

**217. Electrochemical Engineering (4)** Lecture, four hours; outside study, eight hours. Requisite: course C114. Transport phenomena in electrochemical systems; relationships between molecular transport, convection, and electrode kinetics, along with applications to industrial electrochemistry, fuel cell design, and modern battery technology. Letter grading.

**C218. Multimedia Environmental Assessment (4)** Lecture, four hours; discussion, one hour; preparation, two hours; outside study, five hours. Recommended requisites: courses 101C, 102B. Pollutant sources, estimation of source releases, waste minimization, transport and fate of chemical pollutants in environment, intermedia transfers of pollutants, multimedia modeling of chemical partitioning in environment, exposure assessment and fundamentals of risk assessment, risk reduction strategies. Concurrently scheduled with course C118. Letter grading.

**C219. Pollution Prevention for Chemical Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 108A. Systematic methods for design of environment-friendly processes. De-

velopment of methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C119. Letter grading.

**220. Advanced Mass Transfer (4)** Lecture, four hours; outside study, eight hours. Requisite: course 101C. Advanced treatment of mass transfer, with applications to industrial separation processes, gas cleaning, pulmonary bioengineering, controlled release systems, and reactor design; molecular and constitutive theories of diffusion, interfacial transport, membrane transport, convective mass transfer, concentration boundary layers, turbulent transport. Letter grading.

**C221. Membrane Science and Technology (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 101A, 101C, 103. Fundamentals of membrane science and technology, with emphasis on separations at micro, nano, and molecular/angstrom scale with membranes. Relationship between structure/morphology of dense and porous membranes and their separation characteristics. Use of nanotechnology for design of selective membranes and models of membrane transport (flux and selectivity). Examples provided from various fields/applications, including biotechnology, microelectronics, chemical processes, sensors, and biomedical devices. Concurrently scheduled with course C121. Letter grading.

**222A. Stochastic Modeling and Simulation of Chemical Processes (4)** Lecture, four hours; outside study, eight hours. Introduction, definition, rationale of stochastic processes. Distribution, moments, correlation. Mean square calculus. Wiener process, white noise, Poisson process. Generalized functions. Linear systems with stochastic inputs, ergodicity. Application to chemical process modeling and simulation. Markov chains and processes. Ito integrals, stochastic difference, and differential equations. S/U or letter grading.

**222B. Stochastic Optimization and Control (4)** Lecture, four hours; outside study, eight hours. Requisite: course 222A. Introduction to linear and nonlinear systems theory and estimation theory. Prediction, Kalman filter, smoothing of discrete and continuous systems. Stochastic control, systems with multiplicative noise. Applications to control of chemical processes. Stochastic optimization, stochastic linear and dynamic programming. S/U or letter grading.

**223. Design for Environment (4)** Lecture, four hours; outside study, eight hours. Limited to graduate chemical engineering, materials science and engineering, or Master of Engineering program students. Design of products for meeting environmental objectives; lifecycle inventories; lifecycle impact assessment; design for energy efficiency; design for waste minimization, computer-aided design tools, materials selection methods. Letter grading.

**C224. Cell Material Interactions (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 45. Introduction to design and synthesis of biomaterials for regenerative medicine, in vitro cell culture, and drug delivery. Biological principles of cellular microenvironment and design of extracellular matrix analogs using biological and engineering principles. Biomaterials for growth factor, and DNA and siRNA delivery as therapeutics and to facilitate tissue regeneration. Use of stem cells in tissue engineering. Concurrently scheduled with course C124. Letter grading.

**CM225. Bioseparations and Bioprocess Engineering (4)** (Same as Bioengineering M225.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced corequisite: course 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Concurrently scheduled with course C125. Letter grading.

**C226. Viruses and Biotechnology (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course CM145. Introduction of viruses and their varied roles in biotechnology, from utilization of viral enzymes to biotechnologies used to combat viral infectious diseases. Basic concepts of virology. Focus on use of viruses, including bacteriophages, and viral proteins as tools in biotechnology. Examples include bacteriophage display, virus-based nanomaterials, and viral vectors for gene delivery, and vaccines. Covers case studies of viral diseases and biotechnological strategies for diagnosis, prevention, and treatment. Examples include human immunodeficiency virus and coronaviruses. Students conduct literature searches and write paper on relevant topic of their choice. Concurrently scheduled with course C126. Letter grading.

**CM227. Synthetic Biology for Biofuels (4)** (Same as Chemistry CM227.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Chemistry 153A. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic

biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM127. S/U or letter grading.

**C228. Hydrogen (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: Chemistry 20A. Electronic, physical, and chemical properties of hydrogen. Various methods of production, including production through methane steam reforming, electrolysis, and thermochemical cycles. Description in depth of several uses of hydrogen, including hydrogen combustion and hydrogen fuel cells. Concurrently scheduled with course C128. Letter grading.

**230. Reaction Kinetics (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 106, 200. Macroscopic descriptions: reaction rates, relaxation times, thermodynamic correlations of reaction rate constants. Molecular descriptions: kinetic theory of gases, models of elementary processes. Applications: absorption and dispersion measurements, unimolecular reactions, photochemical reactions, hydrocarbon pyrolysis and oxidation, explosions, polymerization. Letter grading.

**231. Molecular Dynamics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 106 or 110. Analysis and design of molecular-beam systems. Molecular-beam sampling of reactive mixtures in combustion chambers or gas jets. Molecular-beam studies of gas-surface interactions, including energy accommodations and heterogeneous reactions. Applications to air pollution control and to catalysis. Letter grading.

**232. Combustion Processes (4)** Lecture, four hours; outside study, eight hours. Requisite: course 106, 200, or Mechanical and Aerospace Engineering C132A. Fundamentals: change equations for multicomponent reactive mixtures, rate laws. Applications: combustion, including burning of (1) premixed gases or (2) condensed fuels. Detonation. Sound absorption and dispersion. Letter grading.

**233. Frontiers in Biotechnology (2)** Lecture, one hour. Requisite: Life Sciences 3. Integration of science and business in biotechnology. Academic research leading to licensing and founding of companies that turn research breakthroughs into marketable products. Invited lecturers from academia and industry cover emerging areas of biotechnology from combination of science, engineering, and business points of view. S/U or letter grading.

**234. Plasma Chemistry and Engineering (4)** Lecture, four hours; outside study, eight hours. Designed for graduate chemistry or engineering students. Application of chemistry, physics, and engineering principles to design and operation of plasma and ion-beam reactors used in etching, deposition, oxidation, and cleaning of materials. Examination of atomic, molecular, and ionic phenomena involved in plasma and ion-beam processing of semiconductors, etc. Letter grading.

**C235. Advanced Process Control (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: course 107. Introduction to advanced process control. Topics include (1) Lyapunov stability for autonomous nonlinear systems including converse theorems, (2) input to state stability, interconnected systems, and small gain theorems, (3) design of nonlinear and robust controllers for various classes of nonlinear systems, (4) model predictive control of linear and nonlinear systems, (5) advanced methods for tuning of classical controllers, and (6) introduction to control of distributed parameter systems. Concurrently scheduled with course C135. Letter grading.

**236. Chemical Vapor Deposition (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 210, C216. Chemical vapor deposition is widely used to deposit thin films that comprise microelectronic devices. Topics include reactor design, transport phenomena, gas and surface chemical kinetics, structure and composition of deposited films, and relationship between process conditions and film properties. Letter grading.

**C240. Fundamentals of Aerosol Technology (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C140. Letter grading.

**CM245. Molecular Biotechnology for Engineers (4)** (Same as Bioengineering CM245.) Lecture, four hours; discussion, one hour; outside study, seven hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM145. Letter grading.

**C246. Systems Biology: Intracellular Network Identification and Analysis (4)** (Formerly numbered 246.) Lecture, four hours; outside study, eight hours. Requisites: course CM245, Mathematics 31A, 31B, 32A, 33B. Systems approach to intracellular network identification and analysis. Transcriptional regulatory networks, protein networks, and metabolic networks. Data from genome sequencing, large-scale expression analysis, and other high-throughput techniques provide bases for systems identification and analysis. Discussion of gene-metabolic network synthesis. Concurrently scheduled with course C146. Letter grading.

**250. Computer-Aided Chemical Process Design (4)** Lecture, four hours; outside study, eight hours. Requisite: course 108B. Application of optimization methods in chemical process design; computer aids in process engineering; process modeling; systematic flowsheet invention; process synthesis; optimal design and operation of large-scale chemical processing systems. Letter grading.

**259. Theory of Applied Mathematics for Chemical Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Recommended preparation: multivariable calculus. Review of functional analysis concepts. Vector spaces, norms, convexity, convergence, continuity, Banach/Hilbert/Sobolev spaces. Linear functionals. Orthonormal sets, linear operators and their spectrum. Minimum distance problems, least squares. Lagrange multipliers, nonlinear duality, variational methods. Finite difference and finite element approximation of partial differential equations (PDEs). Letter grading.

**260. Non-Newtonian Fluid Mechanics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 102A. Principles of non-Newtonian fluid mechanics. Stress constitutive equations. Rheology of polymeric liquids and dispersed systems. Applications in viscometry, polymer processing, biorheology, oil recovery, and drag reduction. Letter grading.

**270. Principles of Reaction and Transport Phenomena (4)** Lecture, four hours; laboratory, eight hours. Fundamentals in transport phenomena, chemical reaction kinetics, and thermodynamics at molecular level. Topics include Boltzmann equation, microscopic chemical kinetics, transition state theory, and statistical analysis. Examination of engineering applications related to state-of-art research areas in chemical engineering. Letter grading.

**270R. Advanced Research in Semiconductor Manufacturing (6)** Laboratory, nine hours; outside study, nine hours. Limited to graduate chemical engineering students in MS semiconductor manufacturing option. Supervised research in processing semiconductor materials and devices. Letter grading.

**280A. Linear Dynamic Systems (4)** (Same as Electrical and Computer Engineering M240A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical and Computer Engineering 141 or Mechanical and Aerospace Engineering 171A. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

**280C. Optimal Control (4)** (Same as Electrical and Computer Engineering M240C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical and Computer Engineering 240B or Mechanical and Aerospace Engineering 270B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

**282A. Nonlinear Dynamic Systems (4)** (Same as Electrical and Computer Engineering M242A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M280A or Electrical and Computer Engineering M240A or Mechanical and Aerospace Engineering M270A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

**283C. Analysis and Control of Infinite Dimensional Systems (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M280A, M282A. Designed for graduate students. Introduction to advanced dynamical analysis and controller synthesis methods for nonlinear infinite dimensional systems. Topics include (1) linear operator and stability theory (basic results on Banach and Hilbert spaces, semigroup theory, convergence theory in function spaces), (2) nonlinear model reduction (linear and nonlinear Galerkin method, proper orthogonal decomposition), (3) nonlinear and robust control of nonlinear hyperbolic and parabolic partial differential equations (PDEs), (4) applications to transport-reaction processes. Letter grading.



**284A. Optimization in Vector Spaces (4)** Lecture, four hours; outside study, eight hours. Requisites: Electrical Engineering 236A, 236B. Review of functional analysis concepts. Convexity, convergence, continuity. Minimum distance problems for Hilbert and Banach spaces. Lagrange multiplier theorem in Banach spaces. Nonlinear duality theory. Letter grading.

**290. Special TopicsS. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Advanced and current study of one or more aspects of chemical engineering, such as chemical process dynamics and control, fuel cells and batteries, membrane transport, advanced chemical engineering analysis, polymers, optimization in chemical process design. May be repeated for credit with topic change. Letter grading.

**297 Seminar: Systems, Dynamics, and Control Topics**

**(2)** (Same as Electrical and Computer Engineering M248S and Mechanical and Aerospace Engineering M299A.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

**298A. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298B. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298C. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298D. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298F. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298G. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298H. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298J. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298L. Research SeminarS. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298M. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298N. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298O. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298P. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298S. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298T. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298V. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**298Z. Research Seminar. (2 to 4)** Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

**299. Departmental Seminar (2)** Seminar, two hours. Limited to graduate chemical engineering students. Seminars by leading academic and industrial chemical engineers on development or application of recent technological advances in discipline. May be repeated for credit. S/U grading.

**495A. Teaching Assistant Training Seminar (2)** Seminar, two hours; outside study, four hours; one-day intensive training at beginning of Fall Quarter. Limited to graduate chemical engineering students. Required of all new teaching assistants. Special seminar on communicating chemical engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of grading, advising, and rapport with students. S/U grading.

**495B. Teaching with Technology for Teaching Assistants (2)** Seminar, two hours; outside study, four hours. Limited to graduate chemical engineering students. Designed for teaching assistants interested in learning more about effective use of technology and ways to incorporate that technology into their classrooms for benefit of student learning. S/U grading.

**596. Directed Individual or Tutorial Studies (2 to 8)** Tutorial, to be arranged. Limited to graduate chemical engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination (2 to 12)** Tutorial, to be arranged. Limited to graduate chemical engineering students in MS semiconductor manufacturing option. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examination (2 to 16)** Tutorial, to be arranged. Limited to graduate chemical engineering students. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination (2 to 16)** Tutorial, to be arranged. Limited to graduate chemical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis (2 to 12)** Tutorial, to be arranged. Limited to graduate chemical engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 16)** Tutorial, to be arranged. Limited to graduate chemical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

# Chemistry and Biochemistry

## Applied Chemical Sciences Courses

### Upper Division

**C102. Data Management in Science (4)** Lecture, four hours. Trains students for different aspects of data management in science. Topics include introduction and application of statistical tests, using Python to help sort data, and brief explanation of machine learning and its role in data analysis. With real-life examples and interactive in-class discussions, students are equipped with necessary data-management skills in both academic and industrial settings. Concurrently scheduled with course C202. Letter grading.

**C106. Medicinal Chemistry and Drug Discovery (4)** Lecture, four hours. Provides students with knowledge of the drug discovery process. The range of topics gives key insight into the development of pharmaceuticals in the modern world, using relevant case-studies to demonstrate real-world applications of fundamentals. Students are required to have an appreciation of the synthetic methods. Concurrently scheduled with course C206. Letter grading.

**C107. Advanced Functional Materials (4)** Lecture, four hours. Examination of synthesis of polymeric materials and their characterization, and basics of 3D printing. Students complete a 3D printing project, in which they select a structure of an existing polymerization catalyst and learn basic CAD skills to transform it into a 3D printed object. Includes literature presentations on current scientific articles. Concurrently scheduled with course C207. Letter grading.

### Graduate

**201A. Modern Analytical Methods in Chemistry (4)** Laboratory, six hours; discussion, two hours. Introduction to fundamental principles and applied aspects of using holistic tools to interrogate matter at various length-scales. Covers essential technologies and concepts practiced in small molecule, materials, and biomaterials-based research. Emphasis on fundamentals and advantages/limitations of techniques. Letter grading.

**201B. Modern Analytical Methods in Chemistry (4)** Laboratory, six hours; discussion, two hours. Introduction to fundamental principles and applied aspects of using holistic tools to interrogate matter at various length-scales. Covers essential technologies and concepts practiced in small molecule, materials, and biomaterials-based research. Emphasis on fundamentals and advantages/limitations of techniques. Letter grading.

**C202. Data Management in Science (4)** (Formerly numbered 202.) Lecture, four hours. Recommended preparation: general coding experience in Python 3. Trains students for different aspects of data management in science. Topics include introduction and application of statistical tests, using Python to help sort data, and brief explanation of machine learning and its role in data analysis. With real-life examples and interactive in-class discussions, students are equipped with necessary data-management skills in both academic and industrial settings. Concurrently scheduled with course C102. Letter grading.

**203. Synthetic Methods (5)** Laboratory, eight hours; discussion, two hours. Synthesis of organic, inorganic and organometallic compounds, including air-sensitive materials; advanced chromatographic and ion exchange methods; spectroscopic characterization and applications. Laboratory projects emphasize advanced characterization tools, team work, and project management. Letter grading.

**204. Workflow Management (3)** Lecture, three hours. Offers training for workflow management in science. Topics include common practices needed for science communication, developing various forms of written documentation, and navigating major organizational and team work challenges. Letter grading.

**205A. Careers in Chemistry (2)** Seminar, two hours. Various non-academic speakers give presentations on career paths in areas such as industry, government, research and development, education, law, and health care, and explain skills that are helpful for the respective career. Students are exposed to a variety of industry opportunities and enhance industry networking capabilities through speaker interactions. Letter grading.

**205B. Careers in Chemistry (2)** Seminar, two hours. Various non-academic speakers give presentations on career paths in areas such as industry, government, research and development, education, law, and health care, and explain skills that are helpful for respective career. Letter grading.

**C206. Medicinal Chemistry and Drug Discovery (4)** (Formerly numbered 206.) Lecture, four hours. Provides students with knowledge of the drug discovery process. The range of topics gives key insight into the development of pharmaceuticals in the modern world, using relevant case-studies to demonstrate real-world applications of fundamentals. Students are required to have an appreciation of the synthetic methods. Concurrently scheduled with course C106. Letter grading.

**C207. Advanced Functional Materials (4)** (Formerly numbered 207.) Lecture, four hours. Examination of synthesis of polymeric materials and their characterization, and basics of 3D printing. Students complete a 3D printing project, in which they select a structure of an existing polymerization catalyst and learn basic CAD skills to transform it into a 3D printed object. Includes literature presentations on current scientific articles. Concurrently scheduled with course C107. Letter grading.

**208A. Capstone Project (8)** Tutorial, eight hours. Development of skill set that is directly translatable to various work environments across chemical industry and other chemistry-related jobs outside of academia. Students build critical thinking skills and learn to work in team on applied chemistry projects. Students are advised to collaborate with campus researchers/experts in humanities, social science, and business/policy fields to improve their communication and project management skills. Letter grading.

**208B. Capstone Project (8)** Tutorial, eight hours. Development of skill set that is directly translatable to various work environments across chemical industry and other chemistry-related jobs outside of academia. Students build critical thinking skills and learn to work in team on applied chemistry projects. Students are advised to collaborate with campus researchers/experts in humanities, social science, and business/policy fields to improve their communication and project management skills. Letter grading.

**208C. Capstone Project (8)** Tutorial, eight hours. Development of skill set that is directly translatable to various work environments across chemical industry and other chemistry-related jobs outside of academia. Students build critical thinking skills and learn to work in team on applied chemistry projects. Students are advised to collaborate with campus researchers/experts in humanities, social science, and business/policy fields to improve their communication and project management skills. Letter grading.

**209. Modern Topics in Applied Chemical Sciences (2)** Seminar, two hours. Survey of modern topics in applied chemical sciences that are relevant to research done by Master of Applied Chemical Sciences students as part of their capstone projects. Features presentations on current scientific articles and ongoing research. Letter grading.

**495. Teaching Assistant Seminar (2)** Seminar, two hours; discussion, two hours. Designed for graduate students. First-time teaching assistants (TAs) are given a supportive group environment with the goal of addressing practical and pedagogical aspects of teaching. Students gain resources to become more effective and reflective as teachers. Discussion of challenges and triumphs to enhance current skill sets and develop new tools for future instructional positions. Topics include active learning, peer instruction, and other collaborative or group activities that promote transparency and equity in the classroom. S/U grading.

**596. Directed Individual Research. (2 to 12)** Tutorial, to be arranged. Directed study or research by supervising faculty member. Research group meetings, seminars, and discussions. May be repeated for credit. S/U grading.

## Chemistry and Biochemistry Courses

### Lower Division

**3. Material World (5)** Lecture, three hours; laboratory, two hours. Focus on most important advances made by humans in developing new molecules and materials, and how these discoveries affect our everyday life. These include development of paints, polymers, metals, fuels, drugs, energetic materials, radioactive substances, poisons, and many more. Connections are made between interplay of science, history, arts, and socio-economic factors driving technological development. Laboratory sections focus on small-scale experiments relevant to everyday life and complimentary to lecture topics. P/NP or letter grading.

**4A. Chemistry and Your Health (2)** Lecture, two hours. Recent health trends and how they are portrayed in pop culture and media. Examination of scientific explanations behind current health crazes and determination if there is validity to these claims. Discussion of chemical principles, such as basic arrow pushing mechanisms, radical oxidations, etc. Investigation of variety of topics including vitamins, health and beauty supplements, sugar alternatives,

detox/cleanses, and traditional medicines. Relevant for students who have taken organic chemistry classes and those who are interested in learning basic organic chemistry concepts. No college-level chemistry is required. P/NP or letter grading.

**4B. What's Cooking Chemistry in the Kitchen (4)** Lecture, three hours. What is difference between baking soda and baking powder? Why do some recipes call for butter, margarine, or shortening? Answers to these questions and more through dive into chemistry happening every day in your kitchen. Study of macromolecules that make up food (carbohydrates, proteins, and lipids), their chemical properties (hydrophobicity, pH, melting point, degree of saturation), and how to use these properties to control texture and taste in food. Chemical concepts are learned in fun, intuitive way, while use of scientific method in improving food preparations is also learned. Opportunities to participate in scientific process through weekly at home experiments in kitchen, and creative research project. P/NP or letter grading.

**7. Nanoscience and Nanotechnology Laboratory (2)** Seminar, discussion, and laboratory, 32 hours. Limited to high school students. Key concepts of nanoscience and nanotechnology, including various approaches to nanofabrication (bottom-up and top-down). Fabrication of nanostructures and devices, collection of scientific data using those devices, analysis of data, and presentations of student results. Offered in summer only. P/NP grading.

**8. Applications of Nanoscience. (2 to 4)** Seminar, discussion, laboratory, and field trip, 30 to 60 hours. Limited to high school students. Introduction of advanced concepts of nanoscience and nanotechnology, with emphasis on applications of nanoscience and nanotechnology in other research fields and industries. Laboratories introduce students to research methods, experiment development, scientific writing, and presentation skills. Students devise and execute their own exploratory nanoscience experiments, and present them to technical audience. Offered only as part of Summer Institute. P/NP grading.

**14A. General Chemistry for Life Scientists I (4)** Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one half years of high school mathematics. Requisite: completion of Chemistry Diagnostic Test. Enforced corequisite: Life Sciences 30A or Mathematics 3A or 31A or score of 48 or better on Mathematics Diagnostic Test. Not open to students with credit for course 20A. Introduction to physical and general chemistry principles; atomic structure based on quantum mechanics; atomic properties; trends in periodic table; chemical bonding (Lewis structures, VSEPR theory, hybridization, and molecular orbital theory); coordination compounds; properties of inorganic and organic acids, bases, buffers. P/NP or letter grading.

**14AE. General Chemistry for Life Scientists I—Enhanced (4)** Lecture, three hours; discussion, two hours. Preparation: high school chemistry or equivalent background and three and one half years of high school mathematics. Requisite: completion of Chemistry Diagnostic Test. Enforced corequisite: Life Sciences 30A or Mathematics 3A or 31A or score of 48 or better on Mathematics Diagnostic Test. Not open to students with credit for course 14A or 20A. Study of foundations of chemistry. Discussion of foundations of quantum mechanics and how these principles can be used to understand atomic and molecular structure and properties; how molecules interact; and properties of inorganic, organic, and biological acids, bases, and salts. Biological, environmental, and socially-relevant examples are used to illustrate central role that chemistry plays in our world. Emphasis on developing problem-solving skills and collaborative interaction and learning. P/NP or letter grading.

**14B. General Chemistry for Life Scientists II (4)** Lecture, three hours; discussion, one hour. Enforced requisite: one course from 14A, 14AE, 20A, or 20AH with grade of C– or better. Enforced requisite or corequisite: Life Sciences 30B or Mathematics 3B or 31B with grade of C– or better. Not open to students with credit for course 14BE, 20B, or 20BH. Chemical equilibria in gases and liquids, acid-base equilibrium; phase changes; thermochemistry; first, second, and third laws of thermodynamics; free energy changes; electrochemistry and its role as energy source; chemical kinetics, including catalysis, and reaction mechanisms. P/NP or letter grading.

**14BE. General Chemistry for Life Scientists II—Enhanced (4)** Lecture, three hours; discussion, two hours. Enforced requisite: one course from 14A, 14AE, 20A, or 20AH with grade of C– or better. Enforced requisite or corequisite: Life Sciences 30B or Mathematics 3B or 31B with grade of C– or better. Not open to students with credit for course 14B, 20B, or 20BH. Introduction to concepts in thermodynamics and kinetics that are critical for understanding of molecular basis of life. Chemical equilibria in gases and liquids, acid-base equilibrium; phase changes; thermochemistry; first, second, and third laws of thermodynamics; free energy changes; electrochemistry; chemical kinetics, including catalysis, and reaction mechanisms. Emphasis on developing problem-solving skills and collaborative interaction and learning. P/NP or letter grading.

**14BL. General and Organic Chemistry Laboratory I (3)** Lecture, one hour; laboratory, three hours. Enforced requisite: course 14A or 20A or 20AH with grade of C– or better. Enforced corequisite: course 14B. Not open to students with credit for course 20L. Introduction to volumetric, spectrophotometric, and potentiometric analysis. Use and preparation of buffers and pH meters. Synthesis and kinetics techniques using compounds of interest to students in life sciences. P/NP or letter grading.

**14C. Structure of Organic Molecules (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 14B with grade of C– or better. Not open to students with credit for course 30A. Continuing studies in structure of organic molecules, with emphasis on biological applications. Resonance, stereochemistry, conjugation, and aromaticity; spectroscopy (NMR, IR, and mass spectrometry); introduction to effects of structure on physical and chemical properties; survey of biomolecular structure. P/NP or letter grading.

**14CL. General and Organic Chemistry Laboratory II (4)** Lecture, one hour; laboratory, six hours. Enforced requisites: courses 14B and 14BL, or 20B and 20L, with grades of C– or better. Enforced corequisite: course 14C. Synthesis and analysis of compounds; purification by extraction, chromatography, recrystallization, and sublimation; characterization by mass spectroscopy, UV, NMR, and IR spectroscopy, optical activity, electrochemistry, pH titration. P/NP or letter grading.

**14D. Organic Reactions and Pharmaceuticals (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 14C with grade of C– or better. Organic reactions, nucleophilic and electrophilic substitutions and additions; electrophilic aromatic substitutions, carbonyl reactions, catalysis, molecular basis of drug action, and organic chemistry of pharmaceuticals. P/NP or letter grading.

**17. Chemical Principles (4)** Lecture, three hours; discussion, one hour. Introduction to chemical principles: numbers, measurements, chemical calculations, gas laws, solutions, acids, bases, and salts, molecular structure, and nomenclature. Collaborative learning and problem solving; introduction to chemistry laboratory practice. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Chemical Structure (4)** Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one half years of high school mathematics. Recommended preparation: high school physics. Requisite: completion of Chemistry Diagnostic Test. Enforced corequisite: Mathematics 31A. Not open to students with credit for course 14A. First term of general chemistry. Survey of chemical processes, quantum chemistry, atomic and molecular structure and bonding, molecular spectroscopy. P/NP or letter grading.

**20AH. Chemical Structure (Honors) (4)** Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background, high school physics, and three and one half years of high school mathematics. Enforced corequisite: Mathematics 31A. Honors course parallel to course 20A. P/NP or letter grading.

**20B. Chemical Energetics and Change (4)** Lecture, three hours; discussion, one hour. Enforced requisites: course 14A or 14AE or 20A or 20AH, and Mathematics 31A, with grades of C– or better. Enforced corequisite: Mathematics 31B. Second term of general chemistry. Intermolecular forces and organization, phase behavior, chemical thermodynamics, solutions, equilibria, reaction rates and laws. P/NP or letter grading.

**20BH. Chemical Energetics and Change (Honors) (4)** Lecture, three hours; discussion, one hour. Enforced requisites: course 20A and Mathematics 31A with grades of B+ or better or 20AH with grade of B or better. Enforced corequisite: Mathematics 31B. Honors course parallel to course 20B. Letter grading.

**20L. General Chemistry Laboratory (3)** Lecture, one hour; laboratory, three hours. Enforced requisite: course 14A or 20A with grade of C– or better. Enforced corequisite: course 14B or 20B. Use of balance, volumetric techniques, volumetric and potentiometric analysis; Beer's law, applications for environmental analysis and materials science. P/NP or letter grading.

**30A. Organic Chemistry I: Structure and Reactivity (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 20B with grade of C– or better. First term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Covalent bonding, shapes, stereochemistry, and acid/base properties of organic molecules. Properties, synthesis, and reactions of alkanes, cycloalkanes, alkenes, and alkynes. SN2, SN1, elimination, and radical reactions. P/NP or letter grading.

**30AL. General Chemistry Laboratory II (4)** Lecture, one hour; laboratory, six hours. Enforced requisites: courses 20B (or 20BH), 20L, and 30A (or 30AH), with grades of C– or better. Qualitative and quantitative analysis of chemical reactions and compounds, kinetics, separations, and spectroscopy. P/NP or letter grading.

**30B. Organic Chemistry II: Reactivity, Synthesis, and Spectroscopy (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 30A or 30AH, with grade of C– or better. Second term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Properties, synthesis, and reactions of alcohols, ethers, sulfur compounds, aldehydes, ketones, carboxylic acids, and carboxylic acid derivatives. Organometallic compounds. Organic spectroscopy, including mass spectrometry, infrared spectroscopy, and proton and carbon nuclear magnetic resonance spectroscopy. P/NP or letter grading.

**30BL. Organic Chemistry Laboratory I (3)** Lecture, one hour; laboratory, four hours. Requisites: courses 30A (or 30AH), 30AL and 30B, with grades of C– or better. Basic experimental techniques in organic synthesis (performing reactions, monitoring reactions, and conducting purifications) and spectroscopy (IR, NMR, mass spectrometry). Synthesis of known organic molecules on microscale level with focus on societal applications. P/NP or letter grading.

**30C. Organic Chemistry III: Reactivity, Synthesis, and Biomolecules (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 30B with grade of C– or better. Third term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Chemistry of enolates, enamines, dicarbonyl compounds, and amines. Molecular orbital theory and conjugated pi systems; UV/vis spectroscopy. Aromaticity and reactions of aromatic molecules. Heterocycles, pericyclic reactions, carbohydrates, and lipids. P/NP or letter grading.

**30CL. Organic Chemistry Laboratory II (4)** Lecture, two hours; laboratory, six hours. Enforced requisites: courses 30B and 30BL, with grades of C– or better. Enforced corequisite: course 30C. Modern techniques in synthetic organic and analytical organic chemistry. Semi-preparative scale, multistep synthesis of organic and organometallic molecules, including asymmetric catalysts. One- and two-dimensional multinuclear NMR techniques. Written reports and proposals. P/NP or letter grading.

**50. Computational Tools for Materials Modeling and Discovery (4)** Lecture, three hours. Enforced requisite: course 14A or 20A or 20AH, with grade of C– or better. Materials are central to many modern technologies, from industrial catalysis, to batteries, computer hard disks, and quantum computers. Computational modeling gains central stage in materials research and discovery, especially with emergence of artificial intelligence techniques and big data initiatives. Introduction to computational tools enabling materials modeling, analysis, predictions, and graphical visualization. Topics such as crystallography, solid state chemistry, and surface science are brought together to enable effective modeling of solid state. Basic concepts related to programming and scripting, and basis of computational chemistry included. P/NP or letter grading.

**88A. Lower-Division Seminar: Serendipity in Science (2)** Seminar, two hours. Limited to 20 freshmen. Inquiry into unexpected discoveries in science that have had significant impact on society and analysis of circumstances that brought these about, beginning with discovery of helium in sun by Janssen in 1868 (using newly developed field of spectroscopy). Discovery of X rays by Röntgen in 1895 and of radioactivity by Becquerel in 1896. Other topics include discoveries important to medicine, such as penicillin by Fleming in 1928 and cis-platin by Rosenberg in 1969. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**96. Special Courses in Chemistry. (1 to 4)** Tutorial, to be arranged. May be repeated for maximum of 8 units. P/NP or letter grading.

**98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors (1)** Laboratory, three hours. Corequisite: associated undergraduate lecture course in chemistry and biochemistry for life sciences majors. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

**98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors (1)** Laboratory, three hours. Corequisite: associated undergraduate lecture course in chemistry and biochemistry for physical sciences and engineering majors. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**C100. Genomics and Computational Biology (5)** Lecture, four hours; discussion, one hour. Introduction for biochemistry students of technologies and experimental data of genomics, as well as computational tools for analyzing them. Biochemistry and molecular biology dissected life into its component parts, one gene at a time, but lacked integrative mechanisms for putting this information back together to predict what happens in complete organism (e.g., over 80 percent of drug candidates fail in clinical trials). High-throughput technologies such as sequencing, microarrays, mass-spec, and robotics have given biologists incredible new capabilities to analyze complete genomes, expression patterns, functions, and interactions across whole organisms, populations, and species. Use and analysis of such datasets becomes essential daily activity for biomedical scientists. Core principles and methodologies for analyzing genomics data to answer biological and medical questions, with focus on concepts that guide data analysis rather than algorithm details. Concurrently scheduled with course C200. P/NP or letter grading.

**101. Catalysis in Modern Drug Discovery (4)** Lecture, three hours. Enforced requisite: course 14D or 30B with a grade of C– or better. Overview of drug discovery process with focus on transition metal catalysis in synthesis of medicines. Discussion of process by which drugs are discovered, from lead optimization to process development. Introduction to transition metal catalysis, area of critical importance in modern drug development. Study of fundamental concepts of transition metal catalysis and how catalysis has played transformative role in synthesis of modern medicines. Particular attention throughout to discussion of case studies that emphasize broad impact of medicinal chemistry and importance of catalysis in drug discovery. Highlights how organic chemistry can impact world around us, particularly in development of pharmaceuticals. P/NP or letter grading.

**103. Environmental Chemistry (4)** Lecture, four hours; discussion, one hour. Requisites: courses 30B, 30BL, 110A, 153A (or 153AH), 153L. Chemical aspects of air and water pollution, solid waste disposal, energy resources, and pesticide effects. Chemical reactions in environment and effect of chemical processes on environment. P/NP or letter grading.

**C105. Introduction to Chemistry of Biology (4)** Lecture, three hours; discussion, one hour. Requisite: course 153A with grade of C– or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Concurrently scheduled with course CM205A. Letter grading.

**C107. Organometallic Chemistry (4)** Lecture/discussion, three hours. Enforced requisite or corequisite: course 172. Survey of synthesis, structure, and reactivity (emphasizing mechanistic approach) of compounds containing carbon bonded to elements selected from main group metals, metalloids, and transition metals, including olefin complexes and metal carbonyls; applications in catalysis and organic synthesis. Concurrently scheduled with course C207. P/NP or letter grading.

**C108. Mass Spectrometry for Chemists and Biochemists (2)** Lecture, one hour; laboratory, four hours. Requisite: course 153A. Introduction to principles and practice of organic and inorganic mass spectrometry. Topics include EI, CI, ICP/MS, GC/MS, LC/MS, ESI, MALDI, MS/MS protein identification, and proteomics. Concurrently scheduled with course C208. P/NP or letter grading.

**110A. Physical Chemistry: Chemical Thermodynamics (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 32A or 3C (for life sciences majors), Physics 1A, 1B, and 1C (may be taken concurrently), or 1AH, 1BH, and 1CH (may be taken concurrently), or

5A, 5B, and 5C (may be taken concurrently), or 6A, 6B, and 6C (may be taken concurrently). Fundamentals of thermodynamics, chemical and phase equilibria, thermodynamics of solutions, electrochemistry. P/NP or letter grading.

**110B. Topics in Physical Chemistry (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: courses 110A, 113A, Mathematics 32B, all with grades of C– or better. Kinetic theory of gases, principles of statistical mechanics, statistical thermodynamics, equilibrium structure and free energy, macroscopic chemical kinetics. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy. P/NP or letter grading.

**113A. Physical Chemistry: Introduction to Quantum Mechanics (4)** Lecture, three hours; discussion, one hour. Requisites: course 20B, Mathematics 32A, 32B, 33A, Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 5A, 5B, and 5C, or 6A, 6B, and 6C, with grades of C– or better. Departure from classical mechanics: Schrödinger versus Newton equations; model systems: particle-in-a-box, harmonic oscillator, rigid rotor, and hydrogen atom; approximation methods: perturbation and variational methods; many-electron atoms, spin, and Pauli principle, chemical bonding. P/NP or letter grading.

**C113B. Quantum Chemistry Methods (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Complete introduction to electronic structure theory methods used by general computational chemistry community, focusing primarily on ab initio methods. Students gain understanding of electronic structure methods and tools to identify which methods are suitable for which types of systems. Methods covered include Hartree Fock, density-functional theory, perturbative methods, and modern high-correlation methods; and highlight algorithms necessary to implement these methods efficiently. Concurrently scheduled with course C213B. P/NP or letter grading.

**114. Physical Chemistry Laboratory (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30AL, 110A, 113A, all with grades of C– or better. Enforced corequisite: course 110B. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes spectroscopy, thermodynamic measurements, and chemical dynamics. P/NP or letter grading.

**114H. Physical Chemistry Laboratory (Honors) (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30AL, 110A, and 113A, with grades of B or better. Enforced corequisite: course 110B or C113B. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes topics in physical chemistry to be selected in consultation with instructor. P/NP or letter grading.

**C115A. Advanced Quantum Chemistry with Laboratory I (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 110B, 113A, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C– or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131, and of analytic mechanics equivalent to Physics 105A. Course C115A or Physics 115B with grade of C– or better is requisite to C115B. Students entering course C115A are normally expected to take course C115B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with course C215A. Letter grading.

**C115B. Advanced Quantum Chemistry with Laboratory II (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 113A, C115A or Physics 115B, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C– or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131 and of analytic mechanics equivalent to Physics 105A. Students entering course C115A are normally expected to take course C115B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with course C215B. Letter grading.

**C115C. Advanced Quantum Chemistry: Applications (4)** Lecture, three hours; discussion, one hour. Requisites: courses 113A, C115B. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Concurrently scheduled with course C215C. P/NP or letter grading.

**117. Structure, Patterns, and Polyhedra (5)** (Same as Honors Collegium M180.) Lecture, four hours; laboratory, two hours. Exploration of structures and their geometric underpinnings, with examples and applications from ar-

chitecture (space frames, domes), biology (enzyme complexes, viruses), chemistry (symmetry, molecular cages), design (tiling), engineering (space filling), and physics (crystal structures) to effect working knowledge of symmetry, two-dimensional patterns, and three-dimensional solids. P/NP or letter grading.

**118. Colloidal Dynamics Laboratory (4)** Lecture, two hours; laboratory, eight hours. Requisites: courses 110A and 110B, with grades of B or better, or equivalent statistical mechanics courses from engineering, mathematics, or physics. One aspect of dispersions of microscale particles in viscous liquids is that such dispersions can be used as visual model systems for studying phases that chemistry undergraduate students typically learn about for nanoscale and molecular systems, yet they do not see. Temperature continuously excites molecules and causes rearrangements, giving dynamic views of macromolecules and particles in many fields, including cell and molecular biology, chemical engineering, chemistry, materials science, and physics. Letter grading.

**120. Soft Matter Laboratory (4)** (Same as Physics M180G.) Lecture, 90 minutes; laboratory, four hours. Requisites: Physics 110B, 115A. Students gain experience of conducting independent research in experimental biological physics. Construction of modern microscope. Use of microscope to image biological specimens. Students learn optics, diffraction, imaging, microscopy, computational physics, and/or fluorescent labeling. P/NP or letter grading.

**121. Special Topics in Physical Chemistry (4)** Lecture, four hours. Requisite: course 110B. Recommended: course 113A. Topics of considerable research interest presented at level suitable for students who have completed junior-year courses in physical chemistry. P/NP or letter grading.

**C122. Mathematical Methods for Chemistry (4)** Lecture, four hours. Enforced requisites: Mathematics 31A, 31B, 32A, 32B. Review of basic mathematics necessary to study physical chemistry at graduate level, with focus on review of vectors, linear algebra, elementary complex analysis, and solution of ordinary and partial differential equations. Development of problem-solving skills through homework based on these mathematical techniques, with examples from physical chemistry. Concurrently scheduled with course C222. P/NP or letter grading.

**C123A. Advanced Thermodynamics and Statistical Mechanics with Laboratory I (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 110A, 110B or 156, 113A, Mathematics 33A, with grades of C– or better. Rigorous presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with course C223A. Letter grading.

**C123B. Advanced Thermodynamics and Statistical Mechanics with Laboratory II (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 110A, 110B or 156, 113A, C123A, Mathematics 33A. Rigorous presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with course C223B. Letter grading.

**124. Philosophy of Science: Historical (4)** (Same as Philosophy M124.) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one course in philosophy or a physical science. Historical introduction to philosophy of science. Discussion of general topics in context of actual episodes in development of natural sciences. May be repeated for credit with consent of instructor. P/NP or letter grading.

**125. Introduction to Python Programming and Machine Learning (4)** Lecture, three hours; computer laboratory, one hour. Requisite: course 14C or 30A, with grade of C– or better. Introduction to programming in Python and to machine learning and its many applications within chemical sciences. Topics include fundamentals of Python programming, routine numerical procedures such as optimization and linear regression, and overview of machine learning, with special emphasis on neural networks and deep learning, including implementation. Exploration of mainstream applications of machine learning to problems of chemical interest, including molecular simulation, protein structure prediction, and computer-aided drug and material design/discovery. Particular topics to be covered and projects to be completed may be decided in part based on student interest and input. P/NP or letter grading.

**C126A. Computational Methods for Chemists (4)** Lecture, one hour; laboratory, four hours. Requisites: courses 110A, 113A, Mathematics 33A. Covers some basics of scientific coding. Introduction to advanced applications provided through commercially available computational packages. Includes quantum mechanical techniques for chemistry, reactivity, spectroscopy, solid state calculations; statistical mechanical techniques for chemistry and biochemistry; python coding, basic algorithms, machine learning, and numerical techniques. Concurrently scheduled with course C226A. P/NP or letter grading.

**CM127. Synthetic Biology for Biofuels (4)** (Same as Chemical Engineering CM127.) Lecture, four hours; discussion, one hour. Requisite: course 153A. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM227. Letter grading.

**C132A. Core Principles in Cell and Molecular Biology (4)** Lecture, four hours. Requisites: Life Sciences 7A, 7B, 7C, 23L. Students gain broad foundational knowledge and skills for rigorous research in emerging areas of cell and molecular biology. Focus on foundational knowledge of cell and molecular biology research areas including cell cycle, cell signaling, cell metabolism, cell communication, cell states and fates, genomes, and proteomes. Focus on skills development for cell and molecular biology research. Students are equipped with theory of modern experimental approaches, and acquire hands-on skills training in designing experiments and analyzing data using these approaches. Students meet with directors of shared core facilities that specialize in these approaches to facilitate use of these approaches in their research. Continuation of in-depth analysis of rigorous experimental design and statistical analyses in cell and molecular biology. Concurrently scheduled with course C232A. P/NP or letter grading.

**136. Organic Structural Methods (5)** Lecture, two hours; laboratory, eight hours. Requisites: courses 30C and 30CL, with grades of C– or better. Laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques. P/NP or letter grading.

**C138. Natural Product Biosynthesis: Chemical Logic and Enzymatic Machinery (4)** Lecture, three hours; discussion, one hour. Requisites: courses 30A, 30B, 30C, 153A. Covers fundamental chemical logic and enzyme mechanisms involved in biosynthesis of natural products. Discussion of major classes of natural product including polyketides, nonribosomal peptides, terpenes, alkaloids. Emphasis on biosynthetic logic used by nature to form complex molecules. Discussion of several important enzyme families in context of biosynthesis, including assembly-line megasynthases, group transferases, oxidoreductases, etc. Historical account of natural product isolation and characterization, as well as modern account of synthetic biology and genome based efforts that are used in discovery of new natural products. Includes extensive survey of scientific literature in format of presentations and discussions. Concurrently scheduled with course C238. Letter grading.

**C140. Bionanotechnology (4)** Lecture, three hours. Requisites: courses 30C, 110A. Basic physical, chemical, and biological principles in bionanotechnology; materials and strategies for top-down and bottom-up fabrication of ordered biologically derived molecules, characterization and detection techniques, and biomimetic materials and applications at nanoscale. Concurrently scheduled with course C240. P/NP or letter grading.

**C143A. Structure and Mechanism in Organic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 30C and 30CL (may be taken concurrently), 110B, and 113A, with grades of C– or better. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. May be concurrently scheduled with course C243A. P/NP or letter grading.

**C143B. Mechanism and Structure in Organic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisite: course C143A with grade of C– or better. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C243B. P/NP or letter grading.

**144. Practical and Theoretical Introductory Organic Synthesis (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30C and 30CL, with grades of C– or better. Lectures on modern synthetic reactions and processes, with emphasis on stereospecific methods for carbon-carbon bond formation. Laboratory methods of synthetic organic chemistry, including reaction techniques, synthesis of natural products, and molecules of theoretical interest. P/NP or letter grading.

**C145. Theoretical and Computational Organic Chemistry (4)** Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 30C, 113A. Applications of quantum mechanical concepts and methods to understand and predict organic structures and reactivities. Computational modeling methods, including laboratory experience with force-field and quantum mechanical computer calculations. Concurrently scheduled with course C245. P/NP or letter grading.

**147. Careers in Chemistry and Biochemistry (2)** Seminar, two hours. Exploration of employment and career opportunities available to students. Different speakers give short presentations to describe their career paths in areas such as industry, government, research and development, education, law, and healthcare, explain how their education in chemistry and biochemistry helped them become successful, and what actual chemistry was used in their particular professions. Students learn and understand real-life applications of chemical concepts found in their coursework. P/NP grading.

**C150. Research Integrity and Methods in Cellular Biology, Molecular Biology, and Biochemistry Research (4)** Lecture, two hours; discussion, two hours. Enforced requisites: courses 153A, 153L, with grades of C– or better. Data analysis and management, statistical methods, use of antibody and kit reagents, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. Concurrently scheduled with course C250. Letter grading.

**151. Machine Learning for Chemistry (4)** (Formerly numbered 51.) Lecture, three hours. Requisites: course 20B or 20BH, Mathematics 33A or 33AH. Introduction to machine learning and its many applications within chemical sciences. Topics include widely-used approaches for modeling large and complex data sets, including neural networks and deep learning, supervised and unsupervised learning, and dimensionality reduction. Exploration of mainstream applications of machine learning to problems of chemical interest, including molecular simulation and computer-aided drug and material design/discovery. Succinct introduction to linear algebra and programming in Python. Particular topics to be covered and projects to be completed may be decided in part based on student interest and input. P/NP or letter grading.

**153A. Biochemistry: Introduction to Structure, Enzymes, and Metabolism (4)** Lecture, four hours; discussion, one hour. Requisite: course 14D or 30B, with grade of C– or better. Recommended: Life Sciences 2, 3, and 23L, or 7A. Structure of proteins, carbohydrates, and lipids; enzyme catalysis and principles of metabolism, including glycolysis, citric acid cycle, and oxidative phosphorylation. P/NP or letter grading.

**153AH. Biochemistry: Introduction to Structure, Enzymes, and Metabolism (Honors) (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 14D or 30B, with grade of C– or better. Recommended: Life Sciences 2, 3, 23L. Honors course parallel to course 153A. P/NP or letter grading.

**153B. Biochemistry: DNA, RNA, and Protein Synthesis (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 153A or 153AH. Recommended: Life Sciences 2, 3, and 23L, or 7A and 7B. Nucleotide metabolism; DNA replication; DNA repair; transcription machinery; regulation of transcription; RNA structure and processing; protein synthesis and processing. P/NP or letter grading.

**153BH. Biochemistry: DNA, RNA, and Protein Synthesis (Honors) (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Enforced requisites: course 153A or 153AH, Life Sciences 2, 3, 23L. Honors course parallel to course 153B. P/NP or letter grading.

**153C. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 153A or 153AH. Metabolism of carbohydrates, fatty acids, amino acids, and lipids; photosynthetic metabolism and assimilation of inorganic nutrients; regulation of these processes. P/NP or letter grading.

**153CH. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation (Honors) (4)** Lecture, three hours; discussion, two hours. Requisite: course 153A or 153AH. Honors course parallel to course 153C. P/NP or letter grading.

**153D. Introduction to Protein Structural Biology (4)** Lecture, three hours; discussion, one hour. Requisites: course 153A, Life Sciences 3 or 7A. Proteins are diverse set of macromolecules that perform critical functions within cells, ranging from enzymes that catalyze metabolic reactions to proteins that enable pathogens to cause disease. Introduction to field of protein structural biology, that seeks to understand molecular basis of protein function through visualizing atomic structures and by investigating how alterations in protein structure affects function. Students gain fundamental understanding of protein structure and its relationship to function and learn how experimental and computational methods are used to determine three-dimensional structures of proteins. Hands-on training in computer graphics programs and online tools used to visualize and analyze protein structures. Letter grading.

**153L. Biochemical Methods I (4)** Lecture, two hours; laboratory, four hours. Requisites: courses 14BL or 20L and 30AL, and 153A or 153AH (may be taken concurrently), with grades of C– or better. Integrated term-long project involving biofuel production in bacteria. Purification of key enzyme for alcohol production from bacteria via affinity chromatography. Assessment of protein amount, purity, and activity of enzyme. Techniques include protein determination by Bradford assay, polyacrylamide gel electrophoresis, immunoblotting, and enzyme activity assays to determine enzyme activity (Km, Vmax, inhibitor studies). P/NP or letter grading.

**154. Biochemical Methods II (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 153A or 153AH, 153B or 153BH, and 153L, with grades of C– or better. Recommended: course 156. Two to three major laboratory projects using biochemical laboratory techniques to investigate contemporary problems in biochemistry. Topics include transcription activation, molecular basis of DNA-protein interactions, biochemical basis of platelet activation, and initiation of blood clotting cascade. Experiments entail characterizing function of proteins, nucleic acids, and lipids involved in these processes. P/NP or letter grading.

**C155. Mitochondria in Medicine, Biology, and Chemistry (1)** Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. May be repeated for credit. Concurrently scheduled with course CM255. P/NP grading.

**156. Physical Biochemistry (4)** Lecture, four hours; discussion, one hour. Requisites: courses 110A, 153A. Biochemical kinetics; solution thermodynamics of biochemical systems; multiple equilibria; hydrodynamics; energy levels, spectroscopy, and bonding; topics from structural, statistical, and electrochemical methods of biochemistry. P/NP or letter grading.

**157. Food: Molecules, Microbes, Environment (4)** (Same as Food Studies M157.) Lecture, three hours; discussion, one hour. Requisite: course 153A. Recommended requisites: Life Sciences 7A, 7B. Study of science of food. Study of food units physical, biological, environmental, social, and behavioral sciences. Use of scientific concepts to explain properties of food. Covers range of topics that focus on science of cooking, critical role of microbes in transformation of foods, genetic and environmental concerns related to acquisition of food, and impact of different dietary systems on metabolism and physiology. Comprises four major interrelated topics: molecules of food and their sources, science of cooking, acquisition of food, eating. P/NP or letter grading.

**C159. Mechanisms of Gene Regulation (4)** Lecture, four hours. Requisite: course 153B. RNA polymerase structures and mechanisms; promoter recognition and transcription cycle; mechanisms of activation; transcriptional poising and elongation control; Mediator of transcription; chromatin remodeling and modification; epigenetic regulation; cotranscriptional and transcription-coupled RNA processing; impact of transcription on mRNA processing and stability; nuclear export of mRNA. Concurrently scheduled with course CM259. P/NP or letter grading.

**C164. Free Radicals in Biology and Medicine. (2 to 4)** Lecture, three hours. Enforced requisites: courses 153A and either 153B or 153C, with grades of C– or better. Biochemical reactivity of dioxygen, its role in mitochondrial metabolism, neurodegenerative diseases, apoptosis, and aging. Discussion of radical reactions, how they are harnessed to achieve enzyme catalysis, and how free radicals contribute to or regulate essential biological processes. These same reactions run amok under certain types of stress and can contribute to wide variety of diseases, including neurodegenerative diseases (e.g., Huntington's, Parkinson's, and Alzheimer's diseases), mitochondrial diseases, atherosclerosis, and aging. Concurrently scheduled with course C264. P/NP or letter grading.

**C165. Metabolic Control by Protein Modification (4)** Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, 153C. Biochemical basis of controlling metabolic pathways by posttranslational modification of proteins, including phosphorylation and methylation reactions. Concurrently scheduled with course C265. Letter grading.

**166. RNA Structure, Recognition, and Function (4)** Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, Life Sciences 3 and 23L, or 7A. Recent years have seen explosion in biochemical characterization of diverse structures and functions of RNA molecules in metabolism of living systems. RNA has been shown to act both as catalyst in living systems and as potent modulator of gene expression control at every level of gene expres-

sion pathways (transcription, RNA processing, translation, degradation). RNA molecules now being used as therapeutic agents in gene therapy approaches. Coverage of these various aspects and in-depth analysis of RNA structure and function, using primary research literature and analysis of molecular structures of RNA and RNA-protein complexes. Letter grading.

**CM170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4)** (Same as Molecular, Cell, and Developmental Biology M170.) Lecture, two to three hours; discussion, zero to two hours. Requisites: courses 153A and 153B, or Life Sciences 3 and 23L, and course 153L. Recommended: courses 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. Concurrently scheduled with course C270. P/NP or letter grading.

**171. Intermediate Inorganic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisite: course 30B with grade of C– or better. Chemical bonding; structure and bonding in solid state; main group, transition metal, lanthanide and actinide compounds and reactions; catalysis, spectroscopy, special topics. P/NP or letter grading.

**C172. Advanced Inorganic Chemistry (4)** (Formerly numbered 172.) Lecture, three hours; discussion, one hour. Requisite: course 171 with grade of C– or better. Systematic approach to modern inorganic chemistry, structure and bonding of inorganic molecules and solids, structure/reactivity relationships, vibrational spectra of complexes, electronic structure and ligand-field theory, mechanisms of inorganic reactions, bonding and spectroscopy of organometallic compounds, transition metals in catalysis and biology. Concurrently scheduled with course C272. P/NP or letter grading.

**C173. Electrochemical Systems (4)** Lecture, three hours; discussion, two hours. Requisites: course 110A, Mathematics 33B. Introduction to principles of electrochemical systems commonly applied in research of inorganic chemistry, materials sciences, and nanotechnology. With examples in recent literature and discussions of experimental practice, focus on qualitative and quantitative evaluation of information obtained from electrochemical characterization methods. Understanding of course contents helps appreciate research and technologies in catalysis, energy storage and conversion, and advanced environmental technologies. Concurrently scheduled with course C273. P/NP or letter grading.

**C174. Inorganic and Metalorganic Laboratory Methods (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 171, with grades of C– or better. Synthesis of inorganic compounds, including air-sensitive materials; Schlenk techniques; chromatographic and ion exchange methods; spectroscopic characterization and literature applications. Concurrently scheduled with course C274. P/NP or letter grading.

**C175. Inorganic Reaction Mechanisms (4)** Lecture, three hours. Requisites: courses 110A, 110B, 113A, and 172, with grades of C– or better. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization, and racemization reactions; stereochemistry; oxidation/reduction, free/radical, polymerization, and photochemical reactions of inorganic species. May be concurrently scheduled with course C275. P/NP or letter grading.

**C176. Group Theory and Applications to Inorganic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 113A and 172, with grades of C– or better. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C276A. P/NP or letter grading.

**C179. Biological Inorganic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 153A (or 153AH), 171. Role of metal ions in biology. Topics include interactions of metal ions and metal cofactors with proteins, nucleic acids, and other biological molecules; mechanisms of metal ion transport and storage; metal cofactor biosynthesis; hydrolytic chemistry; biological electron transfer; metalloenzymes; metals in medicine. Concurrently scheduled with course C279. P/NP or letter grading.

**C180. Solid-State Chemistry (4)** Lecture, three hours. Requisite: course 172 with grade of C– or better. Survey of new materials and methods for their preparation and characterization, with emphasis on band theory and its relationship to chemical, optical, transport, and magnetic properties, leading to deeper understanding of these materials. Concurrently scheduled with course C280. P/NP or letter grading.

**C181. Polymer Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 30B, 110A. Synthesis of organic and inorganic macromolecules, thermodynamic and statistical mechanical descriptions of unique prop-



erties of polymers, polymer characterization methods, and special topics such as conductive and biomedical polymers and polymeric reagents in synthesis. Concurrently scheduled with course C281. P/NP or letter grading.

**184. Chemical Instrumentation (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 110A, with grades of C– or better. Theory and practice of instrumental techniques of chemical and structural analysis, including atomic absorption spectroscopy, gas chromatography, mass spectrometry, nuclear magnetic resonance, polarography, X-ray fluorescence, and other modern methods. P/NP or letter grading.

**185. Materials Chemistry Laboratory (5)** Lecture, two hours; laboratory, eight hours. Requisites: courses 30AL, 110A, 113A, 171. Materials synthesis and physical properties of complex materials. Combines synthetic skills with fundamental physical understanding and characterization in approximately equal proportions to relate materials synthesis to materials function. Letter grading.

**186. Stochastic Processes in Biochemical Systems (4)** (Same as Computational and Systems Biology M175.) Lecture, three hours. Requisites: Life Sciences 1, 2, 3, and 4, or 7A, 7B, and 7C, Mathematics 33B, Electrical and Computer Engineering 131A or Mathematics 170A or Statistics 100A. Covers random and stochastic processes in play in biochemical systems, including ion channels, cytoskeleton, cell migration and mitosis, gene expression networks, and signal transduction. Covers mathematical tools such as continuous and discrete Markov processes, first passage, time escape problems, statistical mechanics, and information theory. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**192A. Undergraduate Practicum in Chemistry and Biochemistry (4)** Lecture, one hour; laboratory, four hours; workshop, two hours. Enforced requisites: courses 14BL and 14CL, or 20L and 30AL, or Science Education 100SL. Intended for students who are planning careers in secondary science chemistry teaching. Complements service learning California Teach science courses that involve teaching field experiences in middle school and high school classrooms. Examination of chemistry issues such as chemical storage and use, waste management, laboratory organization, safety, and techniques. P/NP or letter grading.

**192B. Undergraduate Practicum in Chemistry and Biochemistry (4)** Lecture, one hour; laboratory, four hours; workshop, two hours. Enforced requisites: courses 14BL and 14CL, or 20L and 30AL, or Science Education 100SL. Intended for students who are planning careers in secondary science chemistry teaching. Complements service learning California Teach science courses that involve teaching field experiences in middle school and high school classrooms. Examination of chemistry issues such as chemical storage and use, waste management, laboratory organization, safety, and techniques. P/NP or letter grading.

**192C. Undergraduate Assistant Education Practicum in Chemistry and Biochemistry (4)** Seminar, one hour; assigned setting, six hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in chemistry and biochemistry lectures. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. May not be applied toward

course requirements for any departmental major. May be repeated for credit with consent of instructor. Individual contract required. Information and contracts may be obtained from department. P/NP grading.

**192D. Undergraduate Assistant Education Practicum in Chemistry and Biochemistry (2)** Seminar, one hour; assigned setting, five hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in chemistry and biochemistry lectures. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. May not be applied toward course requirements for any departmental major. May be repeated for credit with consent of instructor. Individual contract required. Information and contracts may be obtained from department. P/NP grading.

**192E. Introduction to Collaborative Learning Theory and Practice (1)** (Same as Atmospheric and Oceanic Sciences M192A, Computer Science M192A, Life Sciences M192A, Mathematics M192A, and Physics M192S.) Seminar, one hour. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. Letter grading.

**192F. Methods and Application of Collaborative Learning Theory and Practice. (2 to 4)** Seminar, one hour; clinic, one to eight hours. Requisite: course 192E or Life Sciences 192A or Physics 192S with grade of C– or better. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated for four times for credit. Letter grading.

**193A. Journal Club Seminars: UC LEADS and MARC (2)** Seminar, three hours. Designed for juniors/seniors in undergraduate research training programs such as UC LEADS and MARC or those who have strong commitment to pursue graduate studies in natural sciences, engineering, or mathematics. Weekly reading and oral presentations of research or research papers selected from current literature. May be repeated for credit. Letter grading.

**193B. Journal Club Seminars: Chemistry and Biochemistry (2)** Seminar, three hours. Limited to undergraduate students. Discussion of readings selected from current literature in particular field. May be repeated for credit. P/NP grading.

**194. Research Group Seminars: Chemistry and Biochemistry (1)** Seminar, three hours. Designed for undergraduate students who are part of research group. Advanced study and analysis of current topics in physical, organic, or inorganic chemistry or biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. P/NP grading.

**196A. Research Apprenticeship in Chemistry and BiochemistryY. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. Consult department for additional information regarding requirements, enrollment petitions, and written proposal deadlines. May be repeated for maximum of 8 units. Individual contract required. P/NP grading.

**196B. Research Apprenticeship in Chemistry and BiochemistryY. (2 to 4)** Tutorial, three hours per week per unit. Enforced requisite: course 196A (8 units). Limited to juniors/seniors. Research apprenticeship for upper-division students under guidance of faculty mentor. Consult department for additional information regarding requirements, enrollment petitions, and written proposal deadlines. May be taken for maximum of 4 units. Individual contract required. P/NP or letter grading.

**199. Directed Research in Chemistry and BiochemistryY. (2 to 4)** Tutorial, three hours per week per unit. Enforced requisite: course 196A (8 units). Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating report required. May be repeated for maximum of 12 units. Individual contract required. P/NP or letter grading.

## Graduate

**C200. Genomics and Computational Biology (5)** Lecture, four hours; discussion, one hour. Introduction for biochemistry students of technologies and experimental data of genomics, as well as computational tools for analyzing them. Biochemistry and molecular biology dissected life into its component parts, one gene at a time, but lacked integrative mechanisms for putting this information back together to predict what happens in complete organism (e.g., over 80 percent of drug candidates fail in clinical trials). High-throughput technologies such as sequencing, microarrays, mass-spec, and robotics have given biologists incredible new capabilities to analyze complete genomes, expression patterns, functions, and interactions across whole organisms, populations, and species. Use and analysis of such datasets becomes essential

daily activity for biomedical scientists. Core principles and methodologies for analyzing genomics data to answer biological and medical questions, with focus on concepts that guide data analysis rather than algorithm details. Concurrently scheduled with course C100. S/U or letter grading.

**201. Scientific Proposal Writing (2)** Lecture, three hours. Designed for graduate biochemistry and molecular biology students. How to write scientific proposals to be submitted to funding agencies. How to develop curricula vitae, put together grant proposals, and critique proposals. Letter grading.

**203B. Ethics in Chemical Research (2)** Seminar, one hour. Discussion of ethics in graduate education, teaching, and chemical research, including issues such as conflicts of interest, plagiarism, intellectual property, sexual harassment, and other topics related to ethical conduct of research. S/U grading.

**203C. Research Integrity and Ethics in Genetics Research (2)** Lecture, 90 minutes. Data analysis and management, statistical methods, use of commercial reagents, microscopy data analysis, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. S/U grading.

**203D. Advanced Topics in Responsible Conduct in Cellular and Molecular Biology Research (2)** Seminar, two hours. Enforced prerequisite: course 203A or 203B or 203C. Cellular and molecular biology PhD students continue to learn how to conduct research in field to reliably advance knowledge while maintaining ethical principles. Designed to be taken in fourth or fifth year of PhD work where students would have already been exposed to many challenges of performing and reporting experiments and who are in stage of their careers where they are beginning to think of applying for postdoctoral fellowships and research and teaching positions. Course helps fulfill training requirement in research integrity for NIH training grants and individual NRSA awards. S/U grading.

**204. Student Research Seminar (2)** Seminar, one hour. Limited to students supported by UCLA program in Cellular and Molecular Biology Predoctoral Training. Research seminar presented by second- and third-year students. S/U grading.

**CM205A. Introduction to Chemistry of Biology (4)** (Same as Pharmacology M205A.) Lecture, three hours; discussion, one hour. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Concurrently scheduled with course C105. Letter grading.

**205B. Issues on Chemistry/Biology Interface (2)** (Same as Pharmacology M205B.) Seminar, one hour. Requisite: course CM205A. Selected talks and papers presented by training faculty on solving problems and utilizing tools in chemistry and molecular biology on chemistry/biology interface (CBI). S/U grading.

**206. Chemistry of Biology Seminar (2)** Seminar, three hours. Limited to students supported by UCLA program in Chemistry/Biology Interface Predoctoral Training. Current research topics at interface of chemistry and biology. May be repeated for credit. S/U grading.

**C207. Organometallic Chemistry (4)** Lecture/discussion, three hours. Requisite or corequisite: course 172. Survey of synthesis, structure, and reactivity (emphasizing mechanistic approach) of compounds containing carbon bonded to elements selected from main group metals, metalloids, and transition metals, including olefin complexes and metal carbonyls; applications in catalysis and organic synthesis. Concurrently scheduled with course C107. S/U or letter grading.

**C208. Mass Spectrometry for Chemists and Biochemists (2)** Lecture, one hour; laboratory, four hours. Requisite: course 153A. Introduction to principles and practice of organic and inorganic mass spectrometry. Topics include EI, CI, ICPMS, GC/MS, LC/MS, ESI, MALDI, MS/MS protein identification, and proteomics. Concurrently scheduled with course C108. S/U or letter grading.

**209. Introduction to Chemistry Research (2)** Seminar, two hours. Half-hour presentations each session by three different chemistry professors to introduce their research programs. S/U grading.

**210. Advanced Topics in Chemical Research (2)** Seminar, one hour. Designed for second-year graduate students to help them engage contemporary challenges in chemical research and their own research projects. Building of critical thinking skills and proposal writing skills. S/U grading.

**C213B. Quantum Chemistry Methods (4)** Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Complete introduction to electronic structure theory methods used by general computational chemistry community, focusing primarily on ab initio methods. Students gain understanding of electronic structure methods and tools to identify which methods are suitable for which types of systems. Methods covered include Hartree

Fock, density-functional theory, perturbative methods, and modern high-correlation methods; and highlight algorithms necessary to implement these methods efficiently. Concurrently scheduled with course C113B. Independent study project required of graduate students. S/U or letter grading.

**C215A. Advanced Quantum Chemistry with Laboratory I (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 110B, 113A, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C– or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131, and of analytic mechanics equivalent to Physics 105A. Course C215A or Physics 115B with grade of C– or better is requisite to C215B. Students entering course C215A are normally expected to take course C215B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with course C115A. Letter grading.

**C215B. Advanced Quantum Chemistry with Laboratory II (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 113A, C215A or Physics 115B, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C– or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131 and of analytic mechanics equivalent to Physics 105A. Students entering course C215A are normally expected to take course C215B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with course C115B. Letter grading.

**C215C. Advanced Quantum Chemistry: Applications (4)** Lecture, three hours; discussion, one hour. Requisite: course C215B. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Concurrently scheduled with course C115C. S/U or letter grading.

**218. Chemistry Student Exit Seminar (2)** Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

**219A. Seminars: Research in Physical Chemistry—Photon Resolved Spectroscopy of Materials (Physical Chemistry) (2)** Seminar, three hours. Limited to chemistry graduate students. Discussion of recent progress in area of photon resolved spectroscopies, with focus on materials and biophysics applications. Literature discussion, discussion of recent results, safety procedures, and guest lectures. S/U grading.

**219B. Seminar: Research in Physical Chemistry—Atmospheric Chemical Processes (2)** Seminar, three hours. Discussion of recent progress in area of atmospheric chemistry, with focus on fundamental physical and chemical processes. Literature discussion, discussion of recent results, safety procedures, and guest lectures. S/U grading.

**219E. Seminar: Research in Physical Chemistry—Dynamics of Molecule-Molecule and Molecule-Surface Reactions (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219I. Seminar: Research in Physical Chemistry—Spectroscopy of Isolated Molecules, Complexes, and Clusters (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219J. Seminar: Research in Physical Chemistry—Chemistry and Biophysics of Interfaces (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219K. Seminar: Research in Physical Chemistry—Statistical Mechanics of Disordered Systems (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219L. Seminar: Research in Physical Chemistry—Modern Methods for Molecular Reactions and Structure (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219Q. Seminar: Research in Physical Chemistry—Ultrafast Studies of Chemical Reaction Dynamics in Condensed Phase (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219R. Seminar: Research in Physical Chemistry—Kinetic, Thermodynamic, and Interfacial Effects in Materials (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219S. Seminar: Research in Physical Chemistry—Nanoscience (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219T. Seminar: Research in Physical Chemistry—Single-Molecule Spectroscopy in Biology (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219U. Seminar: Research in Physical Chemistry—Theory and Applications of Magnetic Resonance Spectroscopy and Imaging (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219V. Seminar: Research in Physical Chemistry—Complex Fluids: Composition, Structure, and Rheology (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219W. Seminar: Research in Physical Chemistry—Biophysics and Statistical Mechanics of Soft Matter (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219X. Seminar: Research in Physical Chemistry—Dynamic Processes in Chemically Reacting Flow Systems (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219Y. Seminar: Research in Physical Chemistry—Theory and Computation for Materials (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**219Z. Seminar: Research in Physical Chemistry—Single-Cell Physiology (2)** Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**221A. Advanced Topics in Physical Chemistry. (2 to 4)** Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**221B. Advanced Topics in Physical Chemistry. (2 to 4)** Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**221C. Advanced Topics in Physical Chemistry. (2 to 4)** Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**221D. Advanced Topics in Physical Chemistry. (2 to 4)** Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**221G. Advanced Topics in Physical Chemistry. (2 to 4)** Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**C222. Mathematical Methods for Chemistry (4)** Lecture, four hours. Enforced requisites: Mathematics 31A, 31B, 32A, 32B. Review of basic mathematics necessary to study physical chemistry at graduate level, with focus on review of vectors, linear algebra, elementary complex analysis, and solution of ordinary and partial differential equations. Development of problem-solving skills through homework based on these mathematical techniques, with examples from physical chemistry. Concurrently scheduled with course C122. S/U or letter grading.

**C223A. Advanced Thermodynamics and Statistical Mechanics with Laboratory I (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 110A, 110B or 156, 113A, Mathematics 33A, with grades of C– or better. Presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with course C123A. Letter grading.

**C223B. Advanced Thermodynamics and Statistical Mechanics with Laboratory II (4)** Lecture, two and one half hours; discussion, one hour; laboratory, 90 minutes. Requisites: courses 110A, 110B or 156, 113A, C223A, Mathematics 33A. Presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with course C123B. Letter grading.

**223C. Nonequilibrium Statistical Mechanics and Molecular Biophysics (4)** (Same as Physics M215D.) Lecture, three hours. Requisites: courses C215B and C223B, or Physics 215A. Fundamentals of nonequilibrium thermodynamics and statistical mechanics applied to molecular biophysics. S/U or letter grading.

**C226A. Computational Methods for Chemists (4)** Lecture, one hour; laboratory, four hours. Requisites: courses 110A, 113A, Mathematics 33A. Covers some basics of scientific coding. Introduction to advanced applications provided through commercially available computational packages. Includes quantum mechanical techniques for chemistry, reactivity, spectroscopy, solid state calculations; statistical mechanical techniques for chemistry and biochemistry; python coding, basic algorithms, machine learning, and numerical techniques. Concurrently scheduled with course C126A. S/U or letter grading.

**CM227. Synthetic Biology for Biofuels (4)** (Same as Chemical Engineering CM227.) Lecture, four hours; discussion, one hour. Requisite: course 153A. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM127. S/U or letter grading.

**228. Chemical Physics Seminar (2)** Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

**229. Introduction to Physical Chemistry Research (2)** Lecture, 90 minutes. Designed primarily for entering graduate physical chemistry students. S/U grading.

**230A. Methods of Structural Molecular Biology: X-Ray Crystallography and Electron Microscopy (4)** Lecture, four hours; discussion, one hour. Requisites: course 156, Mathematics 3C or 33A, Physics 1C or 5B. Methods for structure determination of biomacromolecules—proteins and nucleic acids—focusing on X-ray crystallography, cryo-EM imaging, and electron diffraction. Covers mathematical and computational methods used to obtain atomic structural models of biomolecules. Key physical principles include scattering phenomena, interference and diffraction, symmetry, Fourier transforms, and atomic interpretation of molecular structures in three-dimensions. Letter grading.

**230B. Structural Molecular Biology (4)** (Same as Molecular, Cell, and Developmental Biology M230B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Selected topics from principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and X-ray diffraction; optical and computer filtering; three-dimensional reconstruction. S/U or letter grading.

**230D. Structural Molecular Biology Laboratory (2)** (Same as Molecular, Cell, and Developmental Biology M230D.) Laboratory, 10 hours. Corequisite: course M230B. Methods in structural molecular biology, including experiments utilizing single crystal X-ray diffraction, low angle X-ray diffraction,

electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building. S/U or letter grading.

**C232A. Core Principles in Cell and Molecular Biology (4)** Lecture, four hours. **Requisites:** Life Sciences 7A, 7B, 7C, 23L. Students gain broad foundational knowledge and skills for rigorous research in emerging areas of cell and molecular biology. Focus on foundational knowledge of cell and molecular biology research areas including cell cycle, cell signaling, cell metabolism, cell communication, cell states and fates, genomes, and proteomes. Focus on skills development for cell and molecular biology research. Students are equipped with theory of modern experimental approaches, and acquire hands-on skills training in designing experiments and analyzing data using these approaches. Students meet with directors of shared core facilities that specialize in these approaches to facilitate use of these approaches in their research. Continuation of in-depth analysis of rigorous experimental design and statistical analyses in cell and molecular biology. Concurrently scheduled with course C132A. Letter grading.

**232B. Skills Development for Cell and Molecular Biologists (2)** Seminar, two hours. Students are trained to develop skills necessary to persist and thrive as researchers and scholars in cellular and molecular biology. Topics include resilience in science, balancing work/life, organizing research and career goals, writing impactful abstracts, and presenting great talks. S/U grading.

**232C. Advanced Topics and Approaches in Cell and Molecular Biology Research (2)** Seminar, two hours. Students are trained in current research problems in cellular and molecular biology, and how modern approaches are being used to address these problems. Topics vary based on topical questions and emerging methods/technologies in cellular and molecular biology research. S/U grading.

**232D. Career Development for Cell and Molecular Biologists (2)** Seminar, two hours. Provides career training to prepare cellular and molecular biologist trainees for biomedical careers. Topics include exploring careers in academia, industry, non-traditional paths, and building start-ups; creating professional resumes, cover letters, and job opportunity networks; and connecting to internships on and off campus. S/U grading.

**235E. Seminar: Research in Organic Chemistry—Theoretical and Physical Organic Chemistry (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235F. Seminar: Research in Organic Chemistry—Synthetic Methods and Synthesis of Natural Products (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235G. Seminar: Research in Organic Chemistry—Organometallic Chemistry and Organic Synthesis (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235I. Seminar: Research in Organic Chemistry—Fullerene Chemistry and Materials Science (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235K. Seminar: Research in Organic Chemistry—Organic Chemistry in Organized and Restricted Media (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235N. Seminar: Research in Organic Chemistry—Target- and Diversity-Oriented Synthesis of Natural Products and Product-Like Molecules (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235O. Seminar: Research in Organic Chemistry—Polymer Chemistry and Biomaterials (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235P. Seminar: Research in Organic Chemistry—Reaction Discovery and total Synthesis of Complex Molecules (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235Q. Seminar: Research in Organic Chemistry—Synthetic Organic Chemistry Research (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235R. Seminar: Research in Organic Chemistry—Fluorous Materials, Synthetic Chemistry, and Supramolecular Assembly (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235S. Seminar: Research in Organic Chemistry—Synthetic Methods Development and Mechanistic Study (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**235T. Seminar: Research in Organic Chemistry—Chemical Biology, Analytical Chemistry, and Systems Biochemistry (2)** Seminar/research group meeting, three hours. Advanced study and analysis of current topics in chemical biology, analytical chemistry, and systems biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**236. Spectroscopic Methods of Organic Chemistry (4)** Lecture, three hours. **Requisite or corequisite:** course C243A. Problem solving using proton and carbon 13 nuclear magnetic resonance, infrared spectroscopy, and mass spectrometry; new techniques in NMR, IR, and MS, with emphasis on Fourier transform NMR. S/U or letter grading.

**C238. Natural Product Biosynthesis: Chemical Logic and Enzymatic Machinery (4)** Lecture, three hours; discussion, one hour. Covers fundamental chemical logic and enzyme mechanisms involved in biosynthesis of natural products. Discussion of major classes of natural product including polyketides, nonribosomal peptides, terpenes, alkaloids. Emphasis on biosynthetic logic used by nature to form complex molecules. Discussion of several important enzyme families in context of biosynthesis, including assembly-line megasynthases, group transferases, oxidoreductases, etc. Historical account of natural product isolation and characterization, as well as modern account of synthetic biology and genome based efforts that are used in discovery of new natural products. Includes extensive survey of scientific literature in format of presentations and discussions. Concurrently scheduled with course C138. Letter grading.

**C240. Bionanotechnology (4)** Lecture, three hours. **Requisites:** courses 30C, 110A. Basic physical, chemical, and biological principles in bionanotechnology; materials and strategies for top-down and bottom-up fabrication of ordered biologically derived molecules, characterization and detection techniques, and biomimetic materials and applications at nanoscale. Concurrently scheduled with course C140. S/U or letter grading.

**241A. Special Topics in Organic Chemistry. (2 to 4)** Lecture, two to four hours. **Requisite or corequisite:** course C243A. Each course encompasses one recognized specialty in organic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**241B. Special Topics in Organic Chemistry. (2 to 4)** Lecture, two to four hours. **Requisite or corequisite:** course C243A. Each course encompasses one recognized specialty in organic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**241D. Special Topics in Organic Chemistry. (2 to 4)** Lecture, two to four hours. **Requisite or corequisite:** course C243A. Each course encompasses one recognized specialty in organic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**241F. Special Topics in Organic Chemistry. (2 to 4)** Lecture, two to four hours. **Requisite or corequisite:** course C243A. Each course encompasses one recognized specialty in organic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**C243A. Structure and Mechanism in Organic Chemistry (4)** Lecture, three hours; discussion, one hour. **Requisites:** courses 30C and 30CL (may be taken concurrently), 110B, and 113A, with grades of C– or better. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. May be concurrently scheduled with course C143A. S/U or letter grading.

**C243B. Organic Chemistry: Mechanism and Structure (4)** Lecture, three hours; discussion, one hour. **Requisite:** course C243A. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C143B. S/U or letter grading.

**244A. Organic Synthesis: Methodology and Stereochemistry (4)** Lecture, three hours; discussion, one hour. Modern synthetic reactions and transformations involving organic substrates. Special emphasis on reagents useful in asymmetric induction and stereoselective synthesis of structurally complex target molecules. S/U or letter grading.

**244B. Strategy and Design in Organic Synthesis (4)** Lecture, three hours. Requisite or corequisite: course C243A. Theory behind planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in synthetic process. Reasoning and art involved in organic synthesis. S/U or letter grading.

**C245. Theoretical and Computational Organic Chemistry (4)** Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 30C, 113A. Applications of quantum mechanical concepts and methods to understand and predict organic structures and reactivities. Computational modeling methods, including laboratory experience with force-field and quantum mechanical computer calculations. Concurrently scheduled with course C145. S/U or letter grading.

**247. Organic Colloquium (2)** Seminar, two hours. Seminars in organic chemistry and related areas presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

**248. Organic Chemistry Student Seminar (2)** Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. Strongly recommended for first- and second-year organic chemistry graduate students. Presentation required if taken for letter grade. S/U or letter grading.

**249A. Methods of Materials Chemistry: Synthesis, Characterization, Physical Properties, Applications, and Devices (2)** Seminar, two hours. Designed for first-year graduate students to teach advanced problem-solving skills and critical thinking, with focus on problems and recent literature pertaining to materials chemistry. How materials are synthesized and characterized. Discussion of important physical properties, as well as broad range of applications and behavior in devices. S/U grading.

**249B. Methods of Chemical Synthesis: Organic/Inorganic/Organometallic (2)** Seminar, two hours. Designed for first-year graduate students to teach advanced problem-solving skills and critical thinking, with focus on problems and recent literature pertaining to chemical synthesis of organic, inorganic, and organometallic compounds. S/U grading.

**249C. Methods of Physical/Theoretical/Biophysical Chemistry (2)** Seminar, two hours. Designed for first-year graduate students to teach advanced problem-solving skills and critical thinking, with focus on problems and recent literature pertaining to physical, theoretical, and biophysical chemistry. S/U grading.

**C250. Research Integrity and Methods in Cellular Biology, Molecular Biology, and Biochemistry Research (4)** Lecture, two hours; discussion, two hours. Data analysis and management, statistical methods, use of antibody and kit reagents, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. Concurrently scheduled with course C150. Letter grading.

**CM255. Mitochondria in Medicine, Biology, and Chemistry (1)** (Same as Biological Chemistry M255.) Seminar, two hours every other week. Open to undergraduate and graduate science majors considering or currently conducting research in areas related to mitochondria. Large number of physiological and pathophysiological processes involve mitochondrial function and dysfunction. Focus on understanding how mitochondria metabolism, form, and function impact health and disease. Physiology and cell biology of healthy and dysfunctional mitochondria critically assessed at subcellular, cellular, tissue, and organismal levels. Topics include in-depth analyses of literature and critical evaluation of experimental design and methods of current research. May be repeated for credit. Concurrently scheduled with course C155. S/U grading.

**256B. Seminar: Research in Biochemistry—Biochemistry of Protein Function (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256D. Seminar: Research in Biochemistry—Transcriptional Control Mechanisms in *Drosophila* Embryogenesis (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256F. Seminar: Research in Biochemistry—Current Topics in Prokaryotic Development (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256G. Seminar: Research in Biochemistry—Nucleic Acid Structure Determination by NMR (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256J. Seminar: Research in Biochemistry—Contractile Proteins in Muscle Contraction and Cell Motility (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256K. Seminar: Research in Biochemistry—Biochemistry and Molecular Biology of *Chlamydomonas* (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256L. Seminar: Research in Biochemistry—Literature of Structural Biology (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256M. Cellular and Biochemical Regulation of Metabolism (2)** Research group meeting, two hours. Designed for participants in the Schmitt Lab. The Schmitt Lab focuses on using genetically encoded, fluorescence microscopy-based tools to investigate the subcellular regulation of metabolism. Students demonstrate their understanding of research ongoing in the Schmitt Lab, and appraise relevant scientific literature. Learning is done through hands-on preparation of presentations about ongoing research projects and providing constructive criticism on others research presentations and journal club presentations. S/U grading.

**256N. Seminar: Research in Biochemistry—Advanced Topics in Structural Biology (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256O. Seminar: Research in Biochemistry—Membrane Biophysics (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256P. Seminar: Research in Biochemistry—Analysis of Protein Structure (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256Q. Seminar: Research in Biochemistry—Biochemistry and Function of Ubiquitin in Yeast and Higher Eukaryotes (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256R. Seminar: Research in Biochemistry—Biomolecular Nuclear Magnetic Resonance Spectroscopy and Protein Structure (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256S. Seminar: Research in Biochemistry—Proteome Bioinformatics (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256T. Seminar: Research in Biochemistry—RNA Processing and RNA Genomics (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256U. Seminar: Research in Biochemistry—Mitochondrial Biogenesis and Link to Disease (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256V. Seminar: Research in Biochemistry—Proteomics and Mass Spectrometry (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256W. Seminar: Research in Biochemistry—Cytoskeletal Dynamics during *Drosophila* Oogenesis (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256X. Seminar: Research in Biochemistry—Microtubule-Based Structures and Human Diseases (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**256Y. Seminar: Research in Biochemistry—Research in Genomics: Biochemistry, Synthetic Biology, and Genomics (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**256Z. Seminar: Research in Biochemistry—Information Processing in Intracellular and Intercellular Signaling Networks (2)** Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**257. Physical Chemistry of Biological Macromolecules (4)** Lecture, one hour; discussion, one hour; laboratory, four hours. Requisite: course 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules. S/U or letter grading.

**258. Advanced Topics in Biochemistry and Molecular Biology (2)** Lecture, two hours. Critical analysis of experimental design and methods in biochemistry and molecular biology. In-depth analysis of literature in one or more areas of current research. May be repeated for credit. S/U or letter grading.

**CM259. Mechanisms of Gene Regulation (4)** (Same as Biological Chemistry M259.) Lecture, four hours. Requisite: course 153B. RNA polymerase structures and mechanisms; promoter recognition and transcription cycle; mechanisms of activation; transcriptional poising and elongation control; Mediator of transcription; chromatin remodeling and modification; epigenetic regulation; cotranscriptional and transcription-coupled RNA processing; impact of transcription on mRNA processing and stability; nuclear export of mRNA. Concurrently scheduled with course C159. S/U or letter grading.

**260BL. Advanced Bioinformatics Computational Laboratory (2)** Laboratory, four hours. Enforced requisite: course CM260A. Corequisite: course CM260B. Development and application of computational approaches to ask and answer biological questions by implementing variety of bioinformatics and systems biology algorithms. Advantages and disadvantages of different algorithmic methods for studying biological questions and preliminary understanding of how to compute statistical significance of results. Development of conceptual understanding of implementation of bioinformatics algorithms and foundation for how to do innovative work in these fields. Experience in observing impact of computational complexity of algorithms in computing solutions. S/U or letter grading.

**262. Biochemistry and Molecular Biology of Protein Translocation Systems (3)** Lecture, two hours; discussion, two hours. Requisites: courses 269A through 269D. Protein translocation into nucleus, mitochondrion, peroxisome, chloroplast, endoplasmic reticulum, and protein export in bacteria. Letter grading.

**263. Seminars in Chemical Biology (2)** Seminar, two hours. Seminars in chemical biology (broadly defined) presented by outside speakers, graduate students, postdoctoral fellows, and faculty/staff from diverse scientists. May be repeated for credit. S/U or letter grading.

**C264. Free Radicals in Biology and Medicine. (2 to 4)** Lecture, three hours. Enforced requisites: courses 153A and either 153B or 153C, with grades of C– or better. Biochemical reactivity of dioxygen, its role in mitochondrial metabolism, neurodegenerative diseases, apoptosis, and aging. Discussion of radical reactions, how they are harnessed to achieve enzyme catalysis, and how free radicals contribute to or regulate essential biological processes. These same reactions run amok under certain types of stress and can contribute to wide variety of diseases, including neurodegenerative diseases (e.g., Huntington's, Parkinson's, and Alzheimer's diseases), mitochondrial diseases, atherosclerosis, and aging. Concurrently scheduled with course C164. S/U or letter grading.

**C265. Metabolic Control by Protein Modification (4)** Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, 153C. Biochemical basis of controlling metabolic pathways by posttranslational modification of proteins, including phosphorylation and methylation reactions. Concurrently scheduled with course C165. Letter grading.

**266. Proteomics and Protein Mass Spectrometry (4)** Lecture, four hours. Essential technologies and concepts practiced in proteomics-based research, including methods for protein separation and display, protein quantitation, and protein identification. Emphasis on fundamentals of protein mass spectrometry. S/U or letter grading.

**267. Nanoscience and Chemistry (4)** Lecture, four hours. Enforced requisites: courses 110A, 113A, 171, 172. Designed for advanced undergraduate and graduate students. Why nanoscience is important and interesting and critical role of chemistry in nanoscience. Chemistry and physics of variety of synthetic inorganic nanostructures, including metallic nanostructures (nanocrystals, nanorods, nanowires), semiconductor nanostructures (quantum dots/rods, nanowires, plates), and carbon nanostructures (fullerene, nanotubes,

graphene). Discussion of synthetic approaches, structures, and physical properties, as well as potential technological opportunities of each. Letter grading.

**268. Biochemistry Research Seminar (2)** Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students on topics of current biochemical research interest. May be repeated for credit. S/U or letter grading.

**269A. Protein Structure (2)** Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Three-dimensional structure of proteins. Forces that stabilize structure of soluble and membrane proteins. Kinetics of protein folding and role of chaperones. Prediction of protein structure from sequence. Letter grading.

**269B. Biocatalysis and Bioenergetics (2)** Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Mechanisms and regulation of protein-mediated catalysis. Proteomics and metabolomics. Concepts in electron, proton, and energy transfer. Energy transducing membranes in chloroplasts and mitochondria. Letter grading.

**269C. Nucleic Acid Structure and Catalysis (2)** Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Three-dimensional structure of DNA and RNA. Sequence-specific recognition of DNA and RNA. RNA-catalyzed processes, including self-splicing and peptide bond formation. Letter grading.

**269D. Mechanism and Regulation of Gene Expression (2)** Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Mechanism and regulation of transcription in prokaryotes and eukaryotes. Mechanism and regulation of mRNA processing; mRNA export and degradation. Letter grading.

**269E. Biomolecular Structure, Catalysis, and Regulation (2)** Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Protein-protein interactions, proteomics, protein networks, regulatory circuits, cellular dynamics, imaging of cellular processes. Letter grading.

**C270. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4)** Lecture, two to three hours; discussion, zero to two hours. Requisites: courses 153A and 153B, or Life Sciences 3 and 23L, and course 153L. Recommended: courses 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. Concurrently scheduled with course CM170. S/U or letter grading.

**271. Advanced Topics in Inorganic Chemistry. (2 to 4)** Lecture, two to four hours. Each offering encompasses one recognized specialty in inorganic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

**C272. Advanced Inorganic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisite: course 171 with grade of C– or better. Systematic approach to modern inorganic chemistry, structure and bonding of inorganic molecules and solids, structure/reactivity relationships, vibrational spectra of complexes, electronic structure and ligand-field theory, mechanisms of inorganic reactions, bonding and spectroscopy of organometallic compounds, transition metals in catalysis and biology. Concurrently scheduled with course C172. S/U or letter grading.

**272A. Seminar: Research in Inorganic Chemistry—Chemistry of Materials (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**272C. Seminar: Research in Inorganic Chemistry—Inorganic Spectroscopy (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**272G. Seminar: Research in Inorganic Chemistry—Issues in Chemical Education (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**272I. Seminar: Research in Inorganic Chemistry—Organometallic Chemistry (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**272K. Seminar: Research in Inorganic Chemistry—Inorganic Nanostructures: Synthesis, Properties, and Functions (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**272L. Seminar: Research in Inorganic Chemistry—Molecular Materials (2)**

Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**272M. Seminar: Research in Inorganic Chemistry—Methodology for Chemical Synthesis of Complex Molecules (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**272N. Seminar: Research in Inorganic Chemistry—Electrochemical Materials and Interfaces (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**272O. Seminar: Research in Inorganic Chemistry—Applied Synthetic Inorganic Chemistry (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**272S. Seminar: Research in Inorganic Chemistry—Bioinorganic Chemistry (2)** Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**C273. Electrochemical Systems (4)** Lecture, three hours; discussion, two hours. Introduction to principles of electrochemical systems commonly applied in research of inorganic chemistry, materials sciences, and nanotechnology. With examples in recent literature and discussions of experimental practice, focus on qualitative and quantitative evaluation of information obtained from electrochemical characterization methods. Understanding of course contents helps appreciate research and technologies in catalysis, energy storage and conversion, and advanced environmental technologies. Concurrently scheduled with course C173. S/U or letter grading.

**C274. Inorganic and Metalorganic Laboratory Methods (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 171, with grades of C– or better. Synthesis of inorganic compounds, including air-sensitive materials; Schlenk techniques; chromatographic and ion exchange methods; spectroscopic characterization and literature applications. Concurrently scheduled with course C174. S/U or letter grading.

**C275. Inorganic Reaction Mechanisms (4)** Lecture, three hours. Requisites: courses 110A, 110B, 113A, and 172, with grades of C– or better. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization, and racemization reactions; stereochemistry; oxidation/reduction, free radical, polymerization, and photochemical reactions of inorganic species. May be concurrently scheduled with course C175. S/U or letter grading.

**C276A. Group Theory and Applications to Inorganic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 113A and 172, with grades of C– or better. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C176. S/U or letter grading.

**276B. Physical Methods in Inorganic Chemistry (4)** Lecture, three hours. Requisite: course C276A. Theory and applications of spectroscopic techniques, including magnetic resonance and vibrational and surface science methods, to inorganic compounds and materials. S/U or letter grading.

**277. Crystal Structure Analysis (4)** Lecture, three hours. Theory and practice of modern crystallography, with emphasis on practical experience in structure determination. Topics include crystallographic symmetry, scattering theory, data collection, Fourier analysis, heavy atom techniques, direct methods, isomorphous replacement, crystallographic refinement, error analysis, and common pitfalls. S/U or letter grading.

**278. Inorganic Chemistry Student Seminar (2)** Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

**C279. Biological Inorganic Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 153A (or 153AH), 171. Role of metal ions in biology. Topics include interactions of metal ions and metal cofactors with proteins, nucleic acids, and other biological molecules; mechanisms of metal ion transport and storage; metal cofactor biosynthesis; hydrolytic chemistry; biological electron transfer; metalloenzymes; metals in medicine. Concurrently scheduled with course C179. S/U or letter grading.

**C280. Solid-State Chemistry (4)** Lecture, three hours. Requisite: course 172 with grade of C– or better. Survey of new materials and methods for their preparation and characterization, with emphasis on band theory and its rela-

tionship to chemical, optical, transport, and magnetic properties, leading to deeper understanding of these materials. Concurrently scheduled with course C180. S/U or letter grading.

**C281. Polymer Chemistry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 30B, 110A. Synthesis of organic and inorganic macromolecules, thermodynamic and statistical mechanical descriptions of unique properties of polymers, polymer characterization methods, and special topics such as conductive and biomedical polymers and polymeric reagents in synthesis. Concurrently scheduled with course C181. S/U or letter grading.

**282. Introduction to Inorganic Chemistry Research (2)** Lecture, 90 minutes. Discussion of current research in inorganic chemistry, designed primarily for entering graduate inorganic chemistry students. S/U grading.

**283. Evolution of Devices from Concept to Product (2)** Seminar, 90 minutes. Required of students in Materials Creation Training Program. Training in fundamental science and engineering to fabricate electrical, photonic, and microelectromechanical devices. Discussion of intellectual property issues and development of business plan. May be repeated for credit. S/U or letter grading.

**285. Materials Chemistry Laboratory (5)** Lecture, two hours; laboratory, eight hours. Requisites: courses 30AL, 110A, 113A, 171. Materials synthesis and physical properties of complex materials. Combines synthetic skills with fundamental physical understanding and characterization in approximately equal proportions to relate materials synthesis to materials function. Letter grading.

**400. Safety in Chemical and Biochemical Research (2)** Lecture, two hours. Survey of safe laboratory practices for experimental research in organic, inorganic, and physical chemistry and biochemistry. Topics include laser safety, cryogenic hazards, high- and low-pressure experimentation, gas and carcinogen handling, chemical spills, fire extinguishing, and chemical disposal. S/U grading.

**495. Teaching College Chemistry (2)** Seminar, two hours; discussion, two hours; 20 hours training during week prior to Fall Quarter. Course for teaching assistants designed to deal with problems and techniques of teaching college chemistry. S/U grading.

**596. Directed Individual Study or Research (2 to 16)** Tutorial, to be arranged with faculty member who directs study or research. May be repeated for credit. S/U or letter grading.

**597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations (2 to 4)** Tutorial, to be arranged. May be taken for maximum of 8 units. S/U grading.

**598. Research for and Preparation of MS Thesis (2 to 16)** Tutorial, to be arranged. Each faculty member supervises research of MS students and holds research group meetings, seminars, and discussions with students. May be repeated for credit. S/U or letter grading.

**599. Research for and Preparation of PhD Dissertation (2 to 16)** Tutorial, to be arranged. Each faculty member supervises research of PhD students and holds research group meetings, seminars, and discussions with students. May be repeated for credit. S/U or letter grading.



# Civil and Environmental Engineering

## Civil and Environmental Engineering Courses

### Lower Division

**1. Civil Engineering and Infrastructure (2)** Lecture, two hours; outside study, four hours. Examples of infrastructure, its importance, and manner by which it is designed and constructed. Role of civil engineers in infrastructure development and preservation. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Computer Programming with MATLAB (4)** (Same as Mechanical and Aerospace Engineering M20.) Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Requisite: Mathematics 33A. Fundamentals of computer programming taught in context of MATLAB computing environment. Basic data types and control structures. Input/output. Functions. Data visualization. MATLAB-based data structures. Development of efficient codes. Introduction to object-oriented programming. Examples and exercises from engineering, mathematics, and physical sciences. Letter grading.

**58XP. Climate Change, Water Quality, and Ecosystem Functioning (5)** (Formerly numbered 58SL.) Lecture, four hours; service learning, two hours; outside study, nine hours. Science related to climate change, water quality, and ecosystem health. Topics include carbon and nutrient cycling, hydrologic cycle, ecosystem structure and services, biodiversity, basic aquatic chemistry, and impacts of climate change on ecosystem functioning and water quality. Participation in series of science education projects to elementary or middle school audience. Letter grading.

**91. Statics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 31A, 31B, Physics 1A. Newtonian mechanics, vector representation, and resultant forces and moments. Free-body diagrams and equilibrium, internal loads and equilibrium in trusses, frames, and beams. Planar and nonplanar systems, distributed forces, determinate and indeterminate force systems, shear and moment diagrams, and axial force diagrams. Letter grading.

**97. Variable Topics in Civil and Environmental Engineering (2 to 4)** Seminar, two hours. Current topics and research methods in civil and environmental engineering. May be repeated for credit. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**103. Applied Numerical Computing and Modeling in Civil and Environmental Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course M20 (or Computer Science 31), Mathematics 33B or Mechanical and Aerospace Engineering 82 (either may be taken concurrently). Introduction to numerical computing with specific applications in civil and environmental engineering. Topics include error and computer arithmetic, root finding, curve fitting, numerical integration and differentiation, solution of systems of linear and nonlinear equations, numerical solution of ordinary and partial differential equations. Letter grading.

**C104. Structure, Processing, and Properties of Civil Engineering Materials (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 91 or Mechanical and Aerospace Engineering 101, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Corequisite: course 108. Discussion of aspects of cement and concrete materials, including manufacture of cement and production of concrete. Aspects of cement composition and basic chemical reactions, microstructure, properties of plastic and hardened concrete, chemical admixtures, and quality control and acceptance testing. Development and testing of fundamentals for complete

understanding of overall response of all civil engineering materials. By end of term, successful utilization of fundamental materials science concepts to understand, explain, analyze, and describe engineering performance of civil engineering materials. Concurrently scheduled with course C204. Letter grading.

**C105. Structure and Properties of Amorphous Civil Engineering Materials (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 91 or Mechanical and Aerospace Engineering 101, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Corequisite: course 108. Nature and properties of amorphous civil engineering materials in fields of infrastructure and technology. Special attention to composition-structure-properties relationships and design and selection with respect to targeted civil engineering applications. Concurrently scheduled with course C205. Letter grading.

**C106. Modeling and Simulation of Civil Engineering Materials (4)** Lecture, four hours; outside study, eight hours. Requisites: Chemistry and Biochemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Provides fundamental understanding of modeling and numerical simulations for civil engineering materials. Largely focused on practical examples and applications. By course end, students are expected to be able to independently run simulations at scale relevant to targeted problems. Concurrently scheduled with course C206. Letter grading.

**107. Environmental Fluid Mechanics (4)** Lecture, four hours; laboratory, two hours; discussion, one hour; outside study, five hours. Requisites: Mathematics 32B, 33A. Recommended: Some knowledge of MATLAB or Python. Introduction in environmental fluid mechanics with focus on water. Students gain fundamental understanding of principles governing behavior of water in environmental contexts. Through comprehensive exploration of theoretical concepts, practical applications, and virtual laboratories, students develop profound understanding of principles governing water behavior in natural and engineered environments. May be repeated once for credit. Letter grading.

**108. Introduction to Mechanics of Deformable Solids (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 91 or Mechanical and Aerospace Engineering 101, Mathematics 32B, Physics 1A. Review of equilibrium principles; forces and moments transmitted by slender members. Concepts of stress and strain. Stress-strain relations with focus on linear elasticity. Transformation of stress and strain. Deformations and stresses caused by tension, compression, bending, shear, and torsion of slender members. Structural applications to trusses, beams, shafts, and columns. Introduction to virtual work principle. Letter grading.

**108L. Experimental Structural Mechanics (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 108. Lectures and laboratory experiments in various structural mechanics testing of metals (steel, aluminum, brass), high-strength plastics, and concrete (cylinders, beams). Direct tension. Direct compression. Ultrasonic nondestructive evaluation. Elastic buckling of columns. Fracture mechanics testing and fracture toughness. Splitting tension and flexural tension. Elastic, plastic, and fracture behavior. ASTM and RILEM. Cyclic loading. Microstructures of concrete. Size effects. Letter grading.

**109EW. Ethics in Civil and Environmental Engineering (5)** Lecture, four hours; discussion, three hours; outside study, eight hours. Requisite: English Composition 3 or equivalent. Introduction to ethical and societal considerations in the professional practice of civil and environmental engineering. Exploration of ethical and moral principles, roles and responsibilities of engineers, and social and equity impacts of engineering. Review of civil and environmental engineering case studies, sustainability projects, and emerging technologies in detail; and development of strong arguments. Students draft 15-20 pages of revised prose and complete informal writing assignments. Satisfies engineering writing requirement. May be repeated once for credit. Letter grading.

**110. Introduction to Probability and Statistics for Engineers (4)** Lecture, four hours; discussion, one hour (when scheduled); outside study, seven hours. Requisites: Mathematics 32A, 33A. Recommended: course M20. Introduction to fundamental concepts and applications of probability and statistics in civil engineering, with focus on how these concepts are used in experimental design and sampling, data analysis, risk and reliability analysis, and project design under uncertainty. Topics include basic probability concepts, random variables and analytical probability distributions, functions of random variables, estimating parameters from observational data, regression, hypothesis testing, and Bayesian concepts. Letter grading.

**C111. Machine Learning and Artificial Intelligence for Civil Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course M20, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Theoretical and practical introduction to artificial intelligence and machine learning for civil engineering problems. Focus on practice and

problem-solving skills. By course end, students are expected to be able to independently run machine learning analysis. Concurrently scheduled with course C211. Letter grading.

**116XP. Engineering and Environmental Justice (5)** Lecture, four hours; discussion, one hour; service learning, two hours; outside study, eight hours. Introduction to concept of environmental justice. Examination of methods for assessing disparities in exposure to environmental hazards. Exploration of how engineers can partner with community to address local environmental issues. Along with case study analyses, students collaborate with community-based organizations on real-world projects. Topics include water quality; air quality; energy justice; climate justice; community resilience; race, ethnicity, and class; expertise; and community-based participatory research. May be repeated once for credit. Letter grading.

**120. Principles of Soil Mechanics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Soil as foundation for structures and as material of construction. Soil formation, classification, physical and mechanical properties, soil compaction, earth pressures, consolidation, and shear strength. Letter grading.

**120L. Soil Mechanics Laboratory (4)** (Formerly numbered 128L.) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisite or corequisite: course 120. Laboratory experiments to be performed by students to obtain soil parameters required for assigned design problems. Soil classification, grain size distribution, Atterberg limits, specific gravity, compaction, expansion index, consolidation, shear strength determination. Design problems, laboratory report writing. Letter grading.

**121. Design of Foundations and Earth Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 120. Design methods for foundations and earth structures. Site investigation, including evaluation of soil properties for design. Design of footings and piles, including stability and settlement calculations. Design of slopes and earth retaining structures. Letter grading.

**123. Advanced Geotechnical Design (4)** (Formerly numbered C123.) Lecture, two hours; discussion, two hours; active learning, two hours; outside study, six hours. Requisite: course 121. Corequisite: course 132. Slope stability analysis, including limit equilibrium procedures, finite element method, seepage analysis, and advanced topics such as rapid drawdown, construction of embankments on soft soil, and seismic slope stability. Lateral earth retention systems including gravity walls and excavation support systems. Capstone design project involving appropriate engineering standards and realistic constraints. Letter grading.

**125. Fundamentals of Earthquake Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Overview of engineering seismology, including plate tectonics, faults, wave propagation, and earthquake strong ground motion. Development and selection of design ground motions using both probabilistic seismic hazard analysis and code-based methods. Overview of seismic design regulation and California PE examination's seismic component. Code-based seismic design for new buildings using current International Building Code seismic code provisions. Overview of seismic design of bridges, dams, and other non-building structures. Letter grading.

**C128. Geohazards and Infrastructure Resilience (4)** Lecture, four hours; outside study, eight hours. Requisite: course 120. Geologic characterization of soil and rock units. Relationships developed between landforms, active, past, and ancient geologic processes, ground and surface water, and properties of soil and rock. Geohazards associated with climate change, wildfires, landslides, volcanism, and earthquakes. Effects of geologic processes on civil infrastructure and risk assessment procedures to promote resilience. Concurrently scheduled with course C228. Letter grading.

**129L. Engineering Geomatics (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Collection, processing, and analysis of geospatial data. Ellipsoid and geoid models of shape of Earth. Sea level, height, and geopotential surfaces. Elements and usage of topographic data and maps. Advanced global positioning systems (GPS) for high-precision mapping. Advanced laser-based light detection and ranging (LIDAR) mapping. Quantitative terrain analysis and change detection. Hydrogeomatics: seafloor mapping. Letter grading.

**130. Elementary Structural Mechanics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Analysis of stress and strain, phenomenological material behavior, extension, bending, and transverse shear stresses in beams with general cross-sections, shear center, deflection of beams, torsion of beams, warping, column instability and failure. Letter grading.

**132. Dynamics of Rigid and Flexible Structures (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 91, Physics 1B. Covers kinematics and kinetics of rigid bodies using equilibrium, work

and energy, free and forced response of discrete single-degree-of-freedom and two-degrees-of-freedom flexible structures, and introduction to shock spectra. May be repeated once for credit. Letter grading.

**135A. Elementary Structural Analysis (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Computer Science 31), 108. Introduction to structural analysis; classification of structural elements; analysis of statically determinate trusses, beams, and frames; deflections in elementary structures; virtual work; analysis of indeterminate structures using force method; introduction to displacement method and energy concepts. Letter grading.

**135B. Intermediate Structural Analysis (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Analysis of truss and frame structures using matrix methods; matrix force methods; matrix displacement method; analysis concepts based on theorem of virtual work; moment distribution. Letter grading.

**135C. Introduction to Finite Element Methods (4)** (Same as Mechanical and Aerospace Engineering M168.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 130 or Mechanical and Aerospace Engineering 156A or 166A. Introduction to basic concepts of finite element methods (FEM) and applications to structural and solid mechanics and heat transfer. Direct matrix structural analysis; weighted residual, least squares, and Ritz approximation methods; shape functions; convergence properties; isoparametric formulation of multidimensional heat flow and elasticity; numerical integration. Practical use of FEM software; geometric and analytical modeling; preprocessing and postprocessing techniques; term projects with computers. Letter grading.

**135L. Structural Design and Testing Laboratory (4)** Lecture, two hours; laboratory, five hours; outside study, five hours. Requisites: courses M20, 135A. Limited enrollment. Computer-aided optimum design, construction, instrumentation, and test of small-scale model structure. Use of computer-based data acquisition and interpretation systems for comparison of experimental and theoretically predicted behavior. Letter grading.

**137L. Structural Dynamics Laboratory (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 137. Calibration of instrumentation for dynamic measurements. Determination of natural frequencies and damping factors from free vibrations. Determination of natural frequencies, mode shapes, and damping factors from forced vibrations. Dynamic similitude. Letter grading.

**140L. Structural Components and Systems Testing Laboratory (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Enforced requisite: course 142. Comparison of experimental results with analytical results and code requirements to assess accuracies and limitations of calculation procedures used in structural design. Tests include quasi-static tests of structural elements (beams, columns) and systems (slab-column, beam-column) and dynamic tests of simple building systems. Quasi-static tests focus on assessment of element or subsystem stiffness, strength, and deformation capacity, whereas dynamic tests focus on assessment of periods, mode shapes, and damping. Development of communication skills through preparation of laboratory reports and oral presentations. Letter grading.

**141. Steel Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Introduction to building codes. Fundamentals of load and resistance factor design of steel elements. Design of tension and compression members. Design of beams and beam columns. Simple connection design. Introduction to computer modeling methods and design process. Letter grading.

**142. Design of Reinforced Concrete Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Beams, columns, and slabs in reinforced concrete structures. Properties of reinforced concrete materials. Design of beams and slabs for flexure, shear, anchorage of reinforcement, and deflection. Design of columns for axial force, bending, and shear. Ultimate strength design methods. Letter grading.

**142L. Reinforced Concrete Structural Laboratory (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisites: courses 135B, 142. Limited enrollment. Design considerations used for reinforced concrete beams, columns, slabs, and joints evaluated using analysis and experiments. Links between theory, building codes, and experimental results. Students demonstrate accuracies and limitations of calculation procedures used in design of reinforced concrete structures. Development of skills for written and oral presentations. Letter grading.

**143. Design of Prestressed Concrete Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 135A, 142. Equivalent loads and allowable flexural stresses in determinate and indeterminate systems. Flexural and shear strength design, including secondary effects in indeterminate systems. Design of indeterminate post-tensioned beam

using both hand calculations and commercially available computer program. Discussion of external post-tensioning, one- and two-way slab systems. Letter grading.

**144. Structural Systems Design (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 141 or 142, and 190. Corequisite: course 132. Design course for civil engineering students, with focus on design and performance of complete building structural systems. International Building Code (IBC) and ASCE 7 dead, live, wind, and earthquake loads. Design of reinforced concrete and structural steel buildings. Computer modeling, analysis, and performance assessment of buildings. Letter grading.

**147. Design and Construction of Tall Buildings (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 135B, 141, 190. Corequisite: course 132. Role of structural engineer, architect, and other design professions in design process. Development of architectural design of tall buildings. Influence of building code, zoning, and finance. Advantages and limitations of different structural systems. Development of structural system design and computer model for architectural design. Letter grading.

**148. Wood and Timber Design (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisites: courses 108, 135A. Properties and behavior of wood and wood products, analysis and design of wood and timber structural members subjected to flexural, shear, and axial stresses; connections, fasteners, and detailing; and light-framed wood shear walls and diaphragms. Letter grading.

**150. Introduction to Hydrology (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Computer Science 31), 107 (or Mechanical and Aerospace Engineering 103). Study of hydrologic cycle and relevant atmospheric processes, water and energy balance, radiation, precipitation formation, infiltration, evaporation, vegetation transpiration, groundwater flow, storm runoff, and flood processes. Letter grading.

**151. Introduction to Water Resources Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 107 (or Mechanical and Aerospace Engineering 103), 150. Recommended: courses 103, 110. Principles of hydraulics, flow of water in open channels and pressure conduits, reservoirs and dams, hydraulic machinery, hydroelectric power. Introduction to system analysis and design applied to water resources engineering. Letter grading.

**152. Hydraulic and Hydrologic Design (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 150, 151, 190. Analysis and design of hydraulic and hydrologic systems, including stormwater management systems, potable and recycled water distribution systems, wastewater collection systems, and constructed wetlands. Emphasis on practical design components, including reading/interpreting professional drawings and documents, environmental impact reports, permitting, agency coordination, and engineering ethics. Project-based course includes analysis of alternative designs, use of engineering economics, and preparation of written engineering reports. Letter grading.

**153. Introduction to Environmental Engineering Science (4)** Lecture, four hours; discussion, one hour (when scheduled); outside study, seven hours; field trip. Recommended requisite: course 107 (or Mechanical and Aerospace Engineering 103). Water, air, and soil pollution: sources, transformations, effects, and processes for removal of contaminants. Water quality, water and wastewater treatment, waste disposal, air pollution, global environmental problems. Letter grading.

**154. Chemical Fate and Transport in Aquatic Environments (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 153. Fundamental physical, chemical, and biological principles governing movement and fate of chemicals in surface waters and groundwater. Topics include physical transport in various aquatic environments, air-water exchange, acid-base equilibria, oxidation-reduction chemistry, chemical sorption, biodegradation, and bioaccumulation. Practical quantitative problems solved considering both reaction and transport of chemicals in environment. Letter grading.

**155. Unit Operations and Processes for Water and Wastewater Treatment (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 153. Biological, chemical, and physical methods used to modify water quality. Fundamentals of phenomena governing design of engineered systems for water and wastewater treatment systems. Field trip. Letter grading.

**156A. Environmental Chemistry Laboratory (4)** Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 153 (may be taken concurrently), Chemistry 20A, 20B. Basic laboratory techniques in analytical chemistry related to water and wastewater analysis. Selected experi-

ments include gravimetric analysis, titrimetry spectrophotometry, redox systems, pH and electrical conductivity. Concepts to be applied to analysis of real water samples in course 156B. Letter grading.

**156B. Environmental Engineering Unit Operations and Processes Laboratory (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisites: Chemistry 20A, 20B. Characterization and analysis of typical natural waters and wastewaters for inorganic and organic constituents. Selected experiments include analysis of solids, nitrogen species, oxygen demand, and chlorine residual, that are used in unit operation experiments that include reactor dynamics, aeration, gas stripping, coagulation/flocculation, and membrane separation. Letter grading.

**157A. Hydrologic Modeling (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 150 or 151. Introduction to hydrologic modeling. Topics selected from areas of (1) open-channel flow, including one-dimensional steady flow and unsteady flow, (2) pipe flow and water distribution systems, (3) rainfall-runoff modeling, and (4) groundwater flow and contaminant transport modeling, with focus on use of industry and/or research standard models with locally relevant applications. Letter grading.

**157B. Design of Water Treatment Plants (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 155, 190. Water quality standards and regulations, overview of water treatment plants, design of unit operations, predesign of water treatment plants, hydraulics of plants, process control, and cost estimation. Letter grading.

**157C. Design of Wastewater Treatment Plants (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 155, 190. Process design of wastewater treatment plants, including primary and secondary treatment, detailed design review of existing plants, process control, and economics. Letter grading.

**157L. Hydrologic Analysis (4)** Lecture, two hours; laboratory, five hours; outside study, five hours. Requisite: course 150. Collection, compilation, and interpretation of data for quantification of components of hydrologic cycle, including precipitation, evaporation, infiltration, and runoff. Use of hydrologic variables and parameters for development, construction, and application of analytical models for selected problems in hydrology and water resources. Letter grading.

**C158. Coastal Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 107 or Mechanical and Aerospace Engineering 103, 151. Covers coastal water levels (tides, climate variability, storms, sea level rise, resonance), surface gravity waves (characteristics, transformation, spectra), coastal processes (overtopping, erosion, flooding), coastal protection (walls, nourishment, dunes, berms, nature-based infrastructure), coastal modeling. Concurrently scheduled with course C258. Letter grading.

**C159. Green Infrastructure (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 150, 153. Overview of fundamental science, engineering, and ecological principles to designing green infrastructure for stormwater management. Students design green infrastructure based on current practices, perform engineering calculations to calculate its performance, and develop critical thinking skills needed to design innovative or futuristic green infrastructures that would not only mitigate adverse impact of climate change, but also remain resilient under extreme weather conditions expected during climate change. Concurrently scheduled with course C259. Letter grading.

**C164. Sustainable Waste Management (4)** (Formerly numbered 164.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 153. Introduction to environmental engineering. Management of solid wastes, some of which are hazardous, is integral part of infrastructure development, and it is required to achieve environmental sustainability. Study of all aspects of hazardous and municipal solid waste management technologies with particular emphasis on reuse of some wastes for alternative applications or energy production. Students are expected to integrate economic, environmental, regulatory, policy, and technical considerations into development of engineering designs of sustainable waste management. Student teams design sustainable remediation or waste management plans. Concurrently scheduled with course C264. Letter grading.

**165. Environmental Nanotechnology: Implications and Applications (4)** (Same as Engineering M103.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: Engineering M101. Introduction to potential implications of nanotechnology to environmental systems as well as potential application of nanotechnology to environmental protection. Technical contents include three multidisciplinary areas: (1) physical, chemical, and biological properties of nanomaterials, (2) transport, reactivity, and toxicity of nanoscale materials in natural environmental systems, and (3) use of nanotechnology for energy and water production, plus environmental protection, monitoring, and remediation. Letter grading.

**166. Environmental Microbiology (4)** (Same as Environmental Health Sciences M166.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended prerequisite: course 153. Microbial cell and its metabolic capabilities, microbial genetics and its potentials, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

**166L. Environmental Microbiology Laboratory (2)** (Same as Environmental Health Sciences M166L.) Lecture, one hour; laboratory, two hours; outside study, two hours. Prerequisite: course M166 (may be taken concurrently). General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading.

**170. Introduction to Construction Management (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to construction engineering theory, management, and techniques. Implementation of exercises from academic texts and real project case studies. Discussion of building systems, building components, project delivery methods, document control, critical path method scheduling, labor management, quality management, estimating, sustainability, and cost controls. Letter grading.

**180. Introduction to Transportation Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Designed for juniors/senior Civil Engineering students and Public Affairs graduate students. General characteristics of transportation systems, including streets and highways, rail, transit, air, and water. Capacity considerations, including planning, design, and operations. Components of roadway design, including horizontal and vertical alignment, cross sections, and pavements. Letter grading.

**C181. Traffic Engineering Systems: Operations and Control (4)** (Formerly numbered 181.) Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 180. Traffic operations including traffic data collection and analysis, safety and crash studies, traffic flow theory, highway capacity analysis, signalized intersection design and analysis, and simulation modeling. Students gain understanding of basic traffic flow theory, learn to conduct traffic data collection and analysis, and to apply capacity analysis methods and simulation modeling for both highway and signalized intersections. Concurrently scheduled with course C281. Letter grading.

**C182. Rigid and Flexible Pavements: Design, Materials, and Serviceability (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended prerequisites: courses C104, 108, 120, Materials Science 104. Correlation, analysis, and metrification of aspects of pavement design, including materials selection and traffic loading and volume. Special attention to aspects of pavement distress/serviceability and factoring of these into metrics of pavement performance. Discussion of potential choices of pavement materials (i.e., asphalt and concrete) and their specific strengths and weaknesses in paving applications. Unification and correlation of different variables that influence pavement performance and highlight their relevance in pavement design. Concurrently scheduled with course C282. Letter grading.

**C183. Transportation Sustainability (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Evaluation of urban transportation design policies and practices for addressing sustainable transportation. Examination of historical and contemporary role engineers have played in planning and design of urban transportation systems. Exploration and critical analysis of emerging transportation technologies and policy strategies in improving mobility and reducing air pollution and greenhouse gas emissions. Consideration of how to incorporate social justice principles to create more sustainable and equitable transportation system. May be repeated once for credit. Concurrently scheduled with course C283. Letter grading.

**C185. Transportation Systems Analysis (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 180. Transportation researchers and practitioners are motivated by desire to explain spatial interactions that resulted in movement of people or goods from place to place. Such interactions become more intricate as new technologies emerge. To explore and perceive these intricate interactions, understanding of essential nature of transportation systems to analyze and optimally design such systems is needed more than ever. Introduction to fundamental concepts, methods, and principles underlying transportation systems analysis. Includes two modules, each of which focuses on one level of system analysis: traveler behavior and network. Concurrently scheduled with course C285. Letter grading.

**C186. Intelligent Transportation Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 180. Introduction to basic elements of intelligent transportation systems (ITS), focusing on technological, systems, and institutional aspects. Topics include systems engineering processes, advanced traveler information systems, transportation

network operations, commercial vehicle operations and intermodal freight, public transportation applications, ITS and regional strategic transportation planning, travel demand management, electronic toll collection, and road-pricing, connected and automated vehicles (CAV), data access and exchanges, cybersecurity for ITS, and other smart mobility technologies. Concurrently scheduled with course C286. Letter grading.

**188. Special Courses in Civil and Environmental Engineering (4)** Lecture, to be arranged; discussion, to be arranged (when scheduled); outside study, to be arranged. Special topics in civil engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

**190. Professional Practice (2)** Lecture, two hours; discussion; one hour; outside study, three hours. Prerequisite: one course from 121, 141, 142, 151, 155 (may be taken concurrently). Sustainability in design (e.g., LEED certification for building projects), professional licensure (PE, SE, and GE), project management (proposals, scheduling, and budgeting), business, public policy, leadership, ethics, earthquake loads, wind loads, load combinations, and environmental impact reports. Letter grading.

**194. Research Group Seminars: Civil and Environmental Engineering (2 to 8)** Seminar, two to eight hours; outside study, four to 16 hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

**199. Directed Research in Civil and Environmental Engineering (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**200. Civil and Environmental Engineering Graduate Seminar (2)** Seminar, four hours; outside study, two hours. Various topics in civil and environmental engineering that may include earthquake engineering, environmental engineering, geotechnical engineering, hydrology and water resources engineering, materials engineering, structural engineering, and structural mechanics. May be repeated for credit. S/U grading.

**C204. Structure, Processing, and Properties of Civil Engineering Materials (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Discussion of aspects of cement and concrete materials, including manufacture of cement and production of concrete. Aspects of cement composition and basic chemical reactions, microstructure, properties of plastic and hardened concrete, chemical admixtures, and quality control and acceptance testing. Development and testing of fundamentals for complete understanding of overall response of all civil engineering materials. By end of term, successful utilization of fundamental materials science concepts to understand, explain, analyze, and describe engineering performance of civil engineering materials. Concurrently scheduled with course C104. Letter grading.

**C205. Structure and Properties of Amorphous Civil Engineering Materials (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisites: course 91 or Mechanical and Aerospace Engineering 101, Chemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Corequisite: course 108. Nature and properties of amorphous civil engineering materials in fields of infrastructure and technology. Special attention to composition-structure-properties relationships and design and selection with respect to targeted civil engineering applications. Concurrently scheduled with course C105. Letter grading.

**C206. Modeling and Simulation of Civil Engineering Materials (4)** (Formerly numbered 206.) Lecture, four hours; outside study, eight hours. Prerequisites: Chemistry and Biochemistry 20A, 20B, Mathematics 31A, 31B, 32B, Physics 1A, 1B, 1C. Provides fundamental understanding of modeling and numerical simulations for civil engineering materials. Largely focused on practical examples and applications. By course end, students are expected to be able to independently run simulations at scale relevant to targeted problems. Concurrently scheduled with course C106. Letter grading.

**C211. Machine Learning and Artificial Intelligence for Civil Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Theoretical and practical introduction to artificial intelligence and machine learning for civil engineering problems. Focus on practice and problem-solving skills. By course end, students are expected to be able to independently run machine learning analysis. Concurrently scheduled with course C111. Letter grading.

**220. Advanced Soil Mechanics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 120. State of stress. Consolidation and settlement analysis. Shear strength of granular and cohesive soils. In situ and laboratory methods for soil property evaluation. Letter grading.

**221. Advanced Foundation Engineering (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 121, 220. Stress distribution. Bearing capacity and settlement of shallow foundations, including spread footings and mats. Performance of driven pile and drilled shaft foundations under vertical and lateral loading. Construction considerations. Letter grading.

**222. Introduction to Soil Dynamics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 120. Review of engineering problems involving soil dynamics. Fundamentals of theoretical soil dynamics: response of sliding block-on-plane to cyclic earthquake loads, application of theories of single degree-of-freedom (DOF) system, multiple DOF system and one-dimensional wave propagation. Fundamentals of cyclic soil behavior: stress-strain-pore water pressure behavior, shear moduli and damping, cyclic settlement and concept of volumetric cyclic threshold shear strain. Introduction to modeling of cyclic soil behavior. Letter grading.

**223. Advanced Geotechnical Design (4)** (Formerly numbered C223.) Lecture, four hours; outside study, eight hours. Requisite: course 220. Slope stability analysis, including limit equilibrium procedures, finite element method, seepage analysis, and advanced topics such as rapid drawdown, construction of embankments on soft soil, and seismic slope stability. Lateral earth retention systems including gravity walls and excavation support systems. Advanced analysis methods and design project involving real landslide problem. Emphasis on preparation of professional engineering documents such as proposals, work acknowledgements, figures, plans, and reports. Letter grading.

**224. Advanced Cyclic and Monotonic Soil Behavior (4)** Lecture, four hours; outside study, eight hours. Requisite: course 120. In-depth study of soil behavior under cyclic and monotonic loads. Relationships between stress, strain, pore water pressure, and volume change in range of very small and large strains. Concept of normalized static and cyclic soil behavior. Cyclic degradation and liquefaction of saturated soils. Cyclic settlement of partially saturated and dry soils. Concept of volumetric cyclic threshold shear strain. Factors affecting shear moduli and damping during cyclic loading. Postcyclic behavior under monotonic loads. Critical review of laboratory, field, and modeling testing techniques. Letter grading.

**225. Geotechnical Earthquake Engineering (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 220, 245 (may be taken concurrently). Analysis of earthquake-induced ground failure, including soil liquefaction, cyclic softening of clays, seismic compression, surface fault rupture, and seismic slope stability. Ground response effects on earthquake ground motions. Soil-structure interaction, including inertial and kinematic interaction and foundation deformations under seismic loading. Letter grading.

**226. Geoenvironmental Engineering (4)** Lecture, four hours; outside study, eight hours. Requisite: course 120. Field of geoenvironmental engineering involves application of geotechnical principles to environmental problems. Topics include environmental regulations, waste characterization, geosynthetics, solid waste landfills, subsurface barrier walls, and disposal of high water content materials. Letter grading.

**227. Numerical Methods in Geotechnical Engineering (4)** Lecture, four hours; outside study, eight hours. Requisite: course 220. Introduction to basic concepts of computer modeling of soils using finite element method, and to constitutive modeling based on elasticity and plasticity theories. Special emphasis on numerical applications and identification of modeling concerns such as instability, bifurcation, nonexistence, and nonuniqueness of solutions. Letter grading.

**C228. Geohazards and Infrastructure Resilience (4)** (Formerly numbered 228.) Lecture, four hours; outside study, eight hours. Requisite: course 120. Geologic characterization of soil and rock units. Relationships developed between landforms, active, past, and ancient geologic processes, ground and surface water, and properties of soil and rock. Geohazards associated with climate change, wildfires, landslides, volcanism, and earthquakes. Effects of geologic processes on civil infrastructure and risk assessment procedures to promote resilience. Concurrently scheduled with course C128. Letter grading.

**230A. Linear Elasticity (4)** (Same as Mechanical and Aerospace Engineering M256A.) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 156A or 166A. Linear elastostatics. Cartesian tensors; infinitesimal strain tensor; Cauchy stress tensor; strain energy; equilibrium equations; linear constitutive relations; plane elastostatic problems, holes, corners, inclusions, cracks; three-dimensional problems of Kelvin, Boussinesq, and Cerruti. Introduction to boundary integral equation method. Letter grading.

**230B. Nonlinear Elasticity (4)** (Same as Mechanical and Aerospace Engineering M256B.) Lecture, four hours; outside study, eight hours. Requisite: course M230A. Kinematics of deformation, material and spatial coordinates, deformation gradient tensor, nonlinear and linear strain tensors, strain displacement relations; balance laws, Cauchy and Piola stresses, Cauchy equations of motion, balance of energy, stored energy; constitutive relations, elasticity, hyperelasticity, thermoelasticity; linearization of field equations; solution of selected problems. Letter grading.

**230C. Plasticity (4)** (Same as Mechanical and Aerospace Engineering M256C.) Lecture, four hours; outside study, eight hours. Requisites: courses M230A, M230B. Classical rate-independent plasticity theory, yield functions, flow rules and thermodynamics. Classical rate-dependent viscoplasticity, Perzyna and Duvant/Lions types of viscoplasticity. Thermoplasticity and creep. Return mapping algorithms for plasticity and viscoplasticity. Finite element implementations. Letter grading.

**232. Theory of Plates and Shells (4)** Lecture, four hours; outside study, eight hours. Requisite: course 130. Small and large deformation theories of thin plates; energy methods; free vibrations; membrane theory of shells; axisymmetric deformations of cylindrical and spherical shells, including bending. Letter grading.

**233. Mechanics of Composite Material Structures (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M230B, 232. Elastic, anisotropic stress-strain-temperature relations. Analysis of prismatic beams by three-dimensional elasticity. Analysis of laminated anisotropic plates and shells based on classical and first-order shear deformation theories. Elastodynamic behavior of laminated plates and cylinders. Letter grading.

**235A. Advanced Structural Analysis (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Recommended: course 135B. Review of matrix force and displacement methods of structural analysis; virtual work theorem, virtual forces, and displacements; theorems on stationary value of total and complementary potential energy, minimum total potential energy, Maxwell/Betti theorems, effects of approximations, introduction to finite element analysis. Letter grading.

**235B. Finite Element Analysis of Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 130, 235A. Direct energy formulations for deformable systems; solution methods for linear equations; analysis of structural systems with one-dimensional elements; introduction to variational calculus; discrete element displacement, force, and mixed methods for membrane, plate, shell structures; instability effects. Letter grading.

**235C. Nonlinear Structural Analysis (4)** Lecture, four hours; outside study, eight hours. Requisite: course 235B. Classification of nonlinear effects; material nonlinearities; conservative, nonconservative material behavior; geometric nonlinearities, Lagrangian, Eulerian description of motion; finite element methods in geometrically nonlinear problems; postbuckling behavior of structures; solution of nonlinear equations; incremental, iterative, programming methods. Letter grading.

**236. Stability of Structures I (4)** Lecture, four hours; outside study, eight hours. Requisite: course 130 or 135B. Elastic buckling of bars. Different approaches to stability problems. Inelastic buckling of columns and beam columns. Columns and beam columns with linear, nonlinear creep. Combined torsional and flexural buckling of columns. Buckling of plates. Letter grading.

**237A. Dynamics of Structures (4)** (Same as Mechanical and Aerospace Engineering M269A.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: courses 135A, C137, or equivalent. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady-state response. Emphasis on derivation and solution of governing equations using matrix formulation. Letter grading.

**238. Computational Solid Mechanics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 235B. Advanced finite element and meshfree methods for computational solid mechanics. Stability and consistency in temporal discretization of parabolic and hyperbolic systems. Analysis of numerical dissipation and dispersion. Multifield variational principles for constrained problems. Meshfree methods: approximation theories, Galerkin meshfree methods, collocation meshfree methods, imposition of boundary conditions, domain integration, stability. Letter grading.

**239. Elementary Structural Dynamics (4)** (Formerly numbered C239.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 135B. Basic structural dynamics course for civil engineering students. Elastic free and forced vibrations of single degree of freedom systems, introduction to response history and response spectrum analysis approaches for single and multi-degree-of-freedom systems. Axial, bending, and torsional vibration of beams. Letter grading.

**241. Advanced Steel Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses C137, 141, 235A. Performance characterization of steel structures for static and earthquake loads. Behavior state analysis and building code provisions for special moment resisting, braced, and eccentric braced frames. Composite steel-concrete structures. Letter grading.

**243A. Behavior and Design of Reinforced Concrete Structural Elements (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 142. Advanced topics on design of reinforced concrete structures, including stress-strain relationships for plain and confined concrete, moment-curvature analysis of sections, and design for shear. Design of slender and low-rise walls, as well as design of beam-column joints. Introduction to displacement-based design and applications of strut-and-tie models. Letter grading.

**243B. Response and Design of Reinforced Concrete Structural Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 243A, 246. Information on response and behavior of reinforced concrete buildings to earthquake ground motions. Topics include use of elastic and inelastic response spectra, role of strength, stiffness, and ductility in design, use of prescriptive versus performance-based design methodologies, and application of elastic and inelastic analysis techniques for new and existing construction. Letter grading.

**244. Structural Reliability (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to concepts and applications of structural reliability. Topics include computing first- and second-order estimates of failure probabilities of engineered systems, computing sensitivities of failure probabilities to assumed parameter values, measuring relative importance of random variables associated with systems, identifying relative advantages and disadvantages of various analytical reliability methods, using reliability tools to calibrate simplified building codes, and performing reliability calculations related to performance-based engineering. Letter grading.

**245. Earthquake Ground Motion Characterization (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Corequisite: course C137 or 246. Earthquake fundamentals, including plate tectonics, fault types, seismic waves, and magnitude scales. Characterization of earthquake source, including magnitude range and rate of future earthquakes. Ground motion prediction equations and site effects on ground motion. Seismic hazard analysis. Ground motion selection and modification for response history analysis. Letter grading.

**246. Structural Response to Ground Motions (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses C137, 141, 142, 235A. Spectral analysis of ground motions: response, time, and Fourier spectra. Response of structures to ground motions due to earthquakes. Computational methods to evaluate structural response. Response analysis, including evaluation of contemporary design standards. Limitations due to idealizations. Letter grading.

**247. Earthquake Hazard Mitigation (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 130, and M237A or 246. Concept of seismic isolation, linear theory of base isolation, visco-elastic and hysteretic behavior, elastomeric bearings under compression and bending, buckling of bearings, sliding bearings, passive energy dissipation devices, response of structures with isolation and passive energy dissipation devices, static and dynamic analysis procedures, code provisions and design methods for seismically isolated structures. Letter grading.

**248. Fundamentals of Smart Infrastructure (4)** Lecture, four hours; outside study, eight hours. Students are exposed to the foundations of smart infrastructure, which include the working principles of sensors such as accelerometers, strain gauges, cameras, and data processing methods. Topics include basic foundations of signal (1D) and image (2D) processing, experimental/operational modal analysis of structures, structural health monitoring from visual sensors, and computer vision applications for the assessment of engineered infrastructure. May be repeated once for credit. Letter grading.

**250A. Surface Water Hydrology (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 150. In-depth study of surface water hydrology, including discussion and interrelationship of major topics such as rainfall and evaporation, soils and infiltration properties, runoff and snowmelt processes. Introduction to rainfall-runoff modeling, floods, and policy issues involved in water resource engineering and management. Letter grading.

**250B. Groundwater Hydrology (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 150. Theory of movement and occurrence of water in subterranean aquifers. Steady flow in confined and unconfined aquifers. Mechanics of wells; steady and unsteady radial flows in confined and unconfined aquifers. Theory of leaky aquifers. Parameter estimation. Seawater intrusion. Numerical methods. Applications. Letter grading.

**250C. Hydrometeorology (4)** Lecture, four hours; outside study, eight hours. Requisite: course 250A. In-depth study of hydrometeorological processes. Role of hydrology in climate system, precipitation and evaporation processes, atmospheric radiation, exchange of mass, heat, and momentum between soil and vegetation surface and overlying atmosphere, flux and transport in turbulent boundary layer, basic remote sensing principles. Letter grading.

**250D. Water Resources Systems Engineering (4)** Lecture, four hours; outside study, eight hours. Requisite: course 151. Application of mathematical programming techniques to water resources systems. Topics include reservoir management and operation; optimal timing, sequencing and sizing of water resources projects; and multiobjective planning and conjunctive use of surface water and groundwater. Emphasis on management of water quantity. Letter grading.

**251A. Rainfall-Runoff Modeling (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 251B. Introduction to hydrologic modeling concepts, including rainfall-runoff analysis, input data, uncertainty analysis, lumped and distributed modeling, parameter estimation and sensitivity analysis, and application of models for flood forecasting and prediction of streamflows in water resource applications. Letter grading.

**251B. Contaminant Transport in Groundwater (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 250B, 253. Phenomena and mechanisms of hydrodynamic dispersion, governing equations of mass transport in porous media, various analytical and numerical solutions, determination of dispersion parameters by laboratory and field experiments, biological and reactive transport in multiphase flow, remediation design, software packages and applications. Letter grading.

**251C. Remote Sensing with Hydrologic Applications (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250C. Introduction to basic physical concepts of remote sensing as they relate to surface and atmospheric hydrologic processes. Applications include radiative transfer modeling and retrieval of hydrologically relevant parameters like topography, soil moisture, snow properties, vegetation, and precipitation. Letter grading.

**251D. Hydrologic Data Assimilation (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250C. Introduction to basic concepts of classical and Bayesian estimation theory for purposes of hydrologic data assimilation. Applications geared toward assimilating disparate observations into dynamic models of hydrologic systems. Letter grading.

**252. Engineering Economic Analysis of Water and Environmental Planning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: Engineering 110, one or more courses from Economics 1, 2, 11, 101. Economic theory and applications in analysis and management of water and environmental problems; application of price theory to water resource management and renewable resources; benefit-cost analysis with applications to water resources and environmental planning. Letter grading.

**253. Mathematical Models for Water Quality Management (4)** Lecture, four hours; outside study, eight hours. Requisite: course 153. Development of mathematical models for simulating environmental engineering problems. Emphasis on numerical techniques to solve nonlinear partial differential equations and their application to environmental engineering problems. Letter grading.

**254A. Environmental Aquatic Inorganic Chemistry (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Chemistry 20B, Mathematics 31A, 31B, Physics 1A, 1B. Equilibrium and kinetic descriptions of chemical behavior of metals and inorganic ions in natural fresh/marine surface waters and in water treatment. Processes include acid-base chemistry and alkalinity (carbonate system), complexation, precipitation/dissolution, absorption oxidation/reduction, and photochemistry. Letter grading.

**255A. Physical and Chemical Processes for Water and Wastewater Treatment (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 155, 254A. Review of momentum and mass transfer, chemical reaction engineering, coagulation and flocculation, granular filtrations, sedimentation, carbon adsorption, gas transfer, disinfection, oxidation, and membrane processes. Letter grading.

**255B. Biological Processes for Water and Wastewater Treatment (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 254A, 255A. Fundamentals of environmental engineering microbiology; kinetics of microbial growth and biological oxidation; applications for activated sludge, gas transfer, fixed-film processes, aerobic and anaerobic digestion, sludge disposal, and biological nutrient removal. Letter grading.

**C258. Coastal Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 107 or Mechanical and Aerospace Engineering 103, 151. Covers coastal water levels (tides, climate variability, storms, sea level rise, resonance), surface gravity waves (characteristics, transformation, spectra), coastal processes (overtopping, erosion,

flooding), coastal protection (walls, nourishment, dunes, berms, nature-based infrastructure), coastal modeling. Concurrently scheduled with course C158. Letter grading.

**258A. Membrane Separations in Aquatic Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 254A. Applications of membrane separations to desalination, water reclamation, brine disposal, and ultrapure water systems. Discussion of reverse osmosis, ultrafiltration, electrodialysis, and ion exchange technologies from both practical and theoretical standpoints. Letter grading.

**C259. Green Infrastructure (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 150, 153. Overview of fundamental science, engineering, and ecological principles to designing green infrastructure for stormwater management. Students design green infrastructure based on current practices, perform engineering calculations to calculate its performance, and develop critical thinking skills needed to design innovative or futuristic green infrastructures that would not only mitigate adverse impact of climate change, but also remain resilient under extreme weather conditions expected during climate change. Concurrently scheduled with course C159. Letter grading.

**260. Advanced Topics in Hydrology and Water Resources (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B, 250D. Current research topics in inverse problem of parameter estimation, experimental design, conjunctive use of surface and groundwater, multiobjective water resources planning, and optimization of water resource systems. Topics may vary from term to term. Letter grading.

**261. Colloidal Phenomena in Aquatic Systems (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 254A, 255A. Colloidal interactions, colloidal stability, colloidal hydrodynamics, surface chemistry, adsorption of pollutants on colloidal surfaces, transport of colloids in porous media, coagulation, and particle deposition. Consideration of applications to colloidal processes in aquatic environments. Letter grading.

**261A. Advanced Water Treatment Processes (4)** Lecture, four hours; outside study, eight hours. Requisite: course 255A. In-depth coverage of advanced water treatment processes, including advanced oxidation processes, photolysis, electrochemical treatment methods, and membrane separations. These advanced processes are increasingly necessary to adequately treat both drinking and wastewater. Study of process fundamentals and cutting-edge technologies in detail for thorough understanding of advantages and challenges associated with application of these processes. Letter grading.

**261B. Advanced Biological Processes for Water and Wastewater Treatment (4)** Lecture, four hours; outside study, eight hours. Requisite: course 255B. In-depth treatment of selected topics related to biological treatment of waters and wastewaters, such as biodegradation of xenobiotics, pharmaceuticals, emerging pollutants, toxicity, and nutrients. Discussion of theoretical aspects, experimental observations, and recent literature. Application to important and emerging environmental problems. Letter grading.

**262A. Introduction to Atmospheric Chemistry (4)** (Same as Atmospheric and Oceanic Sciences M203A.) Lecture, three hours. Requisite for undergraduates: Chemistry 20B. Principles of chemical kinetics, thermochemistry, spectroscopy, and photochemistry; chemical composition and history of Earth's atmosphere; biogeochemical cycles of key atmospheric constituents; basic photochemistry of troposphere and stratosphere, upper atmosphere chemical processes; air pollution; chemistry and climate. S/U or letter grading.

**262B. Atmospheric Diffusion and Air Pollution (4)** (Same as Atmospheric and Oceanic Sciences M224B.) Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution. S/U or letter grading.

**263A. Physics of Environmental Transport (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Transport processes in surface water, groundwater, and atmosphere. Emphasis on exchanges across phase boundaries: sediment/water interface; air/water gas exchange; particles, droplets, and bubbles; small-scale dispersion and mixing; effect of reactions on transport; linkages between physical, chemical, and biological processes. Letter grading.

**263B. Advanced Topics in Transport at Environmental Interfaces (4)** Lecture, four hours; outside study, eight hours. Requisite: course 263A. In-depth treatment of selected topics involving transport phenomena at environmental interfaces between solid, fluid, and gas phases, such as aquatic sediments, porous aggregates, and vegetative canopies. Discussion of theoretical models and experimental observations. Application to important environmental engineering problems. Letter grading.

**C264. Sustainable Waste Management (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to environmental engineering. Management of solid wastes, some of which are hazardous, is inte-

gral part of infrastructure development, and it is required to achieve environmental sustainability. Study of all aspects of hazardous and municipal solid waste management technologies with particular emphasis on reuse of some wastes for alternative applications or energy production. Students are expected to integrate economic, environmental, regulatory, policy, and technical considerations into development of engineering designs of sustainable waste management. Student teams design sustainable remediation or waste management plans. Concurrently scheduled with course C164. Letter grading.

**266. Environmental Biotechnology (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 153, 254A. Environmental biotechnology—concept and potential, biotechnology of pollutional control, bioremediation, biomass conversion: composting, biogas and bioethanol production. Letter grading.

**267. Environmental Applications of Geochemical Modeling (4)** Lecture, four hours; outside study, eight hours. Requisite: course 254A. Geochemical modeling is important tool for predicting environmental impacts of contamination. Hands-on experience in modeling using geochemical software packages commonly found in environmental consulting industry to gain better understanding of governing geochemical principles pertaining to movement and transformation of contaminants. Types of modeling include speciation, mineral solubility, surface complexation, reaction path, inverse mass balance, and reactive transport modeling. Case studies involve acid mine drainage, nuclear waste disposal, bioavailability and risk assessment, mine tailings and mining waste, deep well injection, landfill leachate, and microbial respiration. Research/modeling project required. Letter grading.

**C281. Traffic Engineering Systems: Operations and Control (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 180. Traffic operations including traffic data collection and analysis, safety and crash studies, traffic flow theory, highway capacity analysis, signalized intersection design and analysis, and simulation modeling. Students gain understanding of basic traffic flow theory, learn to conduct traffic data collection and analysis, and to apply capacity analysis methods and simulation modeling for both highway and signalized intersections. Concurrently scheduled with course C181. Letter grading.

**C282. Rigid and Flexible Pavements: Design, Materials, and Serviceability (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Correlation, analysis, and metrication of aspects of pavement design, including materials selection and traffic loading and volume. Special attention to aspects of pavement distress/serviceability and factoring of these into metrics of pavement performance. Discussion of potential choices of pavement materials (i.e., asphalt and concrete) and their specific strengths and weaknesses in paving applications. Unification and correlation of different variables that influence pavement performance and highlight their relevance in pavement design. Concurrently scheduled with course C182. Letter grading.

**C283. Transportation Sustainability (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Evaluation of urban transportation design policies and practices for addressing sustainable transportation. Examination of historical and contemporary role engineers have played in planning and design of urban transportation systems. Exploration and critical analysis of emerging transportation technologies and policy strategies in improving mobility and reducing air pollution and greenhouse gas emissions. Consideration of how to incorporate social justice principles to create more sustainable and equitable transportation system. May be repeated once for credit. Concurrently scheduled with course C183. Letter grading.

**C285. Transportation Systems Analysis (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 180. Transportation researchers and practitioners are motivated by desire to explain spatial interactions that resulted in movement of people or goods from place to place. Such interactions become more intricate as new technologies emerge. To explore and perceive these intricate interactions, understanding of essential nature of transportation systems to analyze and optimally design such systems is needed more than ever. Introduction to fundamental concepts, methods, and principles underlying transportation systems analysis. Includes two modules, each of which focuses on one level of system analysis: traveler behavior and network. Concurrently scheduled with course C185. Letter grading.

**C286. Intelligent Transportation Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 180. Introduction to basic elements of intelligent transportation systems (ITS), focusing on technological, systems, and institutional aspects. Topics include systems engineering processes, advanced traveler information systems, transportation network operations, commercial vehicle operations and intermodal freight, public transportation applications, ITS and regional strategic transportation planning, travel demand management, electronic toll collection, and road-pricing, connected and automated vehicles (CAV), data access and exchanges, cybersecurity for ITS, and other smart mobility technologies. Concurrently scheduled with course C186. Letter grading.



**287. Travel Behavior Analysis (4)** (Same as Public Policy M221 and Urban Planning M253.) Lecture, three hours. Requisites: Public Policy 201 or M201A, and 203, or Urban Planning 207 and 220B. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation, trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

**296. Advanced Topics in Civil Engineering. (2 to 4)** Seminar, to be arranged. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**298. Seminar: Engineering. (2 to 4)** Seminar, to be arranged. Limited to graduate civil engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

**495. Teaching Assistant Training Seminar (2)** Seminar, two hours. Preparation: appointment as teaching assistant in Civil and Environmental Engineering Department. Seminar on communication of civil engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids; grading, advising, and rapport with students. S/U grading.

**596. Directed Individual or Tutorial Studies. (2 to 8)** Tutorial, to be arranged. Limited to graduate civil engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination. (2 to 12)** Tutorial, to be arranged. Limited to graduate civil engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examination. (2 to 16)** Tutorial, to be arranged. Limited to graduate civil engineering students. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination. (2 to 16)** Tutorial, to be arranged. Limited to graduate civil engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis. (2 to 12)** Tutorial, to be arranged. Limited to graduate civil engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 16)** Tutorial, to be arranged. Limited to graduate civil engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

# Classics

## Classics Courses

### Lower Division

**10. Discovering Greeks (5)** Lecture, three hours; discussion, one hour. Knowledge of Greek not required. Study of Greek life and culture from age of Homer to Roman conquest. Readings focus on selections from works of ancient authors in translation. Lectures illustrated with images of art, architecture, and material culture. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Discovering Romans (5)** Lecture, three hours; discussion, one hour. Knowledge of Latin not required. Study of Roman life and culture from time of city's legendary foundations to end of classical antiquity. Readings focus on selections from works of ancient authors in translation. Lectures illustrated with images of art, architecture, and material culture. P/NP or letter grading.

**30. Classical Mythology (5)** Lecture, three hours; discussion, one hour. Introduction to myths and legends of ancient Greece and/or Rome, role of those stories in their societies, and modern approaches to studying them. P/NP or letter grading.

**40W. Reading Greek Literature: Writing-Intensive (5)** Lecture, two hours; discussion, two hours. Requisite: English Composition 3. Exploration in detail and from variety of critical perspectives of carefully selected literary texts characteristic of ancient Greece and significant in Western literary tradition. Satisfies Writing II requirement. Letter grading.

**41W. Reading Roman Literature: Writing-Intensive (5)** Lecture, two hours; discussion, two hours. Requisite: English Composition 3. Exploration in detail and from variety of critical perspectives of carefully selected set of literary texts characteristic of ancient Rome and significant in Western literary tradition. Satisfies Writing II requirement. Letter grading.

**42. Cinema and Ancient World (5)** Lecture/screenings, five hours; discussion, one hour. Use of popular culture and cinema to introduce students to ancient Greek and/or Roman culture; focus at discretion of instructor. P/NP or letter grading.

**47. Medical Terminology: Origins, Nature, and Practice (5)** Lecture, three hours. Introduction to specialized vocabulary of health sciences, which is rooted in Greek and Roman languages and in those two cultures from which much of history of modern medicine is derived. Students gain working knowledge of fundamental terminology used in medicine and health sciences as well as how this terminology has been composed. Development of ability to interpret and pronounce words. Students apply linguistic rules and how they operate in English and field-specific vocabulary to understand new terminology in various health science fields. Study of etymological origins of fundamental terminology as mnemonic aid for learning and recalling this terminology, and also to serve as mechanism for connecting health/medical professions to humanistic origins. P/NP or letter grading.

**48. Ancient Greek and Roman Medicine (5)** Lecture, three hours; discussion, one hour. Introduction to Greek and Roman medicine in its intellectual and cultural context. Examination of construction of concepts such as health, disease, physician, man, woman, cause, and difference. Readings from Greek literature and healing in cult of Asclepius. Readings of texts from Hippocratic collection, thought to be close to practice and theory of 5th-century BCE Greek physician, relating them to medical practice, competition for students and patients, intellectual display, developing scientific methods, ethnography, and Greek philosophy. Discussion of plagues as attempts to view such outbreaks as social phenomena. Examination of how Hippocratic understanding of how—or whether—we can know about what happens inside body was developed and challenged in 3rd-century BCE Alexandria. Study of Prince of Physicians, Galen, champion of Hippocratic medicine, influential into 18th century. P/NP or letter grading.

**51A. Art and Archaeology of Ancient Greece (5)** Lecture, three hours; discussion, one hour. Survey of major period, theme, or medium of Greek art and archaeology at discretion of instructor. P/NP or letter grading.

**51B. Art and Archaeology of Ancient Rome (5)** Lecture, three hours; discussion, one hour. Survey of major period, theme, or medium of Roman art and archaeology at discretion of instructor. P/NP or letter grading.

**60. Fantastic Journey: Antiquity and Beyond (5)** Lecture, two and one half hours; discussion, one hour. Investigation of phenomenon of fantastic or imaginary journey, from Homer's *Odyssey* to Stanley Kubrick's 2001: *A Space Odyssey*. Examination of ways in which travel to strange or new worlds is presented through number of texts (and occasionally films) across different cultures and periods, with focus primarily on antiquity but also looking at how important motifs from ancient Greek and Roman travel narratives have endured to present day. Issues include cultural relativism, what makes space either familiar or alien, rebuilding of home in fantastic territories, methods of travel (both fantastic and mundane), methods of measuring time and distance across space, modern classifications of fantasy and science fiction, and to what extent these terms are applicable to ancient world. P/NP or letter grading.

**88GE. General Education Seminar Sequences (5)** Seminar, three hours. Focused study of one aspect of ancient Greek or Roman culture or reception of classical tradition. Topics are interdisciplinary in nature (literature, arts, religion, politics, culture) and make connections between ancient and postclassical eras. Topics include rediscovery of Pompeii and Herculaneum; Roman religion and literature; pleasures of Greek or Roman body; and 18th-century British literature and reception of classics. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**M114A. History of Ancient Mediterranean World (4)** (Same as History M112C.) Lecture, five hours. Intensive on-site study of history and culture of ancient Rome from founding of city to conversion of Christianity. Part of UCLA Summer Travel Program. P/NP or letter grading.

**114B. History and Monuments of Rome: Field Studies (4)** (Same as History M112E.) Fieldwork, five hours. Enforced corequisite: course M114A. Examination of history, art, and monuments of ancient Rome through daily lectures and field walks to museums and archaeological sites. Field trips outside Rome to Pompeii, Hadrian's Villa, and ancient Ostia. Reception and ruins of Roman antiquity in medieval, Renaissance, and modern eras explored in their historical context. Part of UCLA Summer Travel Program. P/NP or letter grading.

**121. Ancient and Medieval Political Theory (4)** (Same as Political Science M111A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Plato, Aristotle, Thucydides, St. Augustine, Aquinas, Machiavelli, and More and questions such as forms of government, citizenship, justice, happiness, rhetoric, religion, emotion. P/NP or letter grading.

**124. Modern Receptions of Ancient Political Thought (4)** (Same as Political Science M119A.) Lecture, three hours. Designed for juniors/seniors. Study of how Western culture has conceived and reinterpreted political thought of ancient Greeks and Romans. Topics include examination of influential case(s) of modern reception of classical antiquity. P/NP or letter grading.

**125. Invention of Democracy (5)** (Same as Political Science M112B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Democracy was invented in ancient Greece as political form grounded on equality before law, citizenship, and freedom. It came into existence as struggle by demos, people, aware of its excellence and proud of its power, *kratos*. It became only regime capable of including all members of community while disregarding wealth, status, and diverging interests. Examination of history and theory of ancient democracy. P/NP or letter grading.

**130. Race, Ethnicity, Identity in Greco-Roman World (4)** Lecture, two and one half hours. Examination of construction of racial and ethnic identities in Greco-Roman world and ways that ancient texts and study of antiquity have influenced Western constructions of race. Case studies include both ethno-

graphic constructions of other by dominant groups (e.g. invention of stereotypes like barbarian and noble savage) and experiences of members of marginalized groups within dominant cultures (e.g. Egyptian identity in Hellenistic Egypt, Greek, Syrian, and Jewish identity in Roman Empire). P/NP or letter grading.

**133. Ancient Historiography: Theory and Practice (4)** (Same as History M113C.) Lecture, three hours. Study of theory, practice, and development of writing history in cultures of ancient Greece and Rome. Focus is literary, centered on questions of genre and rhetoric. Encourages appreciation for how ancient historiography relates to other ancient genres (epic, biography, oratory). Readings may draw widely from various authors, including Herodotus, Thucydides, Livy, Tacitus, and others. P/NP or letter grading.

**137. Ancient Lives: Art of Biography (4)** Lecture, three hours. Study of origins, development, and practice of writing lives (i.e., biography) represented in cultures of ancient Greece and Rome. Readings include examples from Greek and Roman lives of Plutarch and lives of Roman Emperors (Caesars) by Suetonius. Comparisons with modern biographical traditions in literature and film. P/NP or letter grading.

**138. Ancient Letters (4)** Lecture, three hours. Requisite: course 10 or 20. Study of practice of letter writing in ancient Greek and Roman worlds. Broad survey of letters as literary compositions and historical documents or more focused analysis of one particular period, author, or theme. P/NP or letter grading.

**140. Topics in History of Greek Literature (4)** Lecture, three hours. Requisite: course 10 or 40W. Investigation of specific issue in understanding of Greek literature, such as definition of one genre or evaluation of particular author. May be repeated for credit with topic change. P/NP or letter grading.

**141. Topics in History of Latin Literature (4)** Lecture, three hours. Requisite: course 20 or 41W. Investigation of specific issue in interpretation of Latin literature, such as definition of one genre or evaluation of particular author. May be repeated for credit with topic change. P/NP or letter grading.

**142. Ancient Epic (4)** Lecture, three hours. Requisite: one course from 10, 20, 30, 40W, or 41W. Homer's *Iliad* and *Odyssey*, Vergil's *Aeneid*, and Ovid's *Metamorphoses*, studied in translation. P/NP or letter grading.

**143A. Ancient Tragedy (4)** Lecture, three hours. Requisite: course 10 or 40W. Survey of tragedy from 5th-century Athens through later antiquity. P/NP or letter grading.

**143B. Ancient Comedy (4)** Lecture, three hours. Requisite: course 10 or 20. Survey of comedy as it developed in Greek and Roman worlds. P/NP or letter grading.

**144. Topical Studies in Ancient Culture (4)** Lecture, three hours. Investigation of one problem in ancient culture that involves discussion of both Greek and Roman material. May be repeated for credit with topic change. P/NP or letter grading.

**145A. Ancient Greek and Roman Philosophy (4)** (Same as Philosophy M103A.) Lecture, three hours. Study of some major Greek and Roman philosophical texts, including those of pre-Socratics, Plato, Aristotle, and Hellenistic philosophers, with emphasis on historical and cultural setting of texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues. P/NP or letter grading.

**145B. Later Ancient Greek Philosophy (4)** (Same as Philosophy M103B.) Lecture, three hours. Requisite: one course from M145A, Philosophy 1, 100A, M101B, or M102. Study of some major texts in Greek philosophy of Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

**146A. Plato—Earlier Dialogues (4)** (Same as Philosophy M101A.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato. P/NP or letter grading.

**146B. Plato—Later Dialogues (4)** (Same as Philosophy M101B.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in middle and later dialogues of Plato. P/NP or letter grading.

**147. Aristotle (4)** (Same as Philosophy M102.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle. P/NP or letter grading.

**148. Early Greek Medicine and Thought (5)** Lecture, three hours; discussion, one hour. Versions of medical theory and practice in context of Greek intellectual and cultural developments. Readings from medical, philosophical, and historical texts. P/NP or letter grading.

**149. Bodies in Antiquity (4)** (Same as Disability Studies M122.) Lecture, three hours. Investigation of individuals and groups that compose ancient Greek and Roman societies and relationship they have with larger social body, with

particular focus on marginalized or minority groups such as women, noncitizens (resident aliens and provincials), slaves, children, elderly, and disabled. Examination of ways these groups contribute to or detract from our understanding of ancient society as whole. May be repeated for credit with topic change. P/NP or letter grading.

**150A. Female in Greek Literature and Culture (4)** Lecture, three hours. Requirement: course 10. Interdisciplinary study of concept of female in Greek literature and culture. P/NP or letter grading.

**150B. Female in Roman Literature and Culture (4)** Lecture, three hours; discussion, one hour. Requirement: course 20. Interdisciplinary study of concept of female in Roman literature and culture. P/NP or letter grading.

**C151E. Archaeological Field Techniques (12)** Off-campus field archaeology, 36 hours. Preparation: at least one classical archaeology course. Training in techniques of archaeological research in field, including topographic and area survey, mapping and recording artifacts, excavation and data analysis. Conducted in Mediterranean area. Concurrently scheduled with course C251E. P/NP or letter grading.

**152A. Ancient City: Greek World (4)** Lecture, three hours. Enforced requirement: course 10 or 51A or Art History 20 or History 1A. Range of interdisciplinary approaches to study of Athens and/or cities of Greek world, including Asia Minor, south Italy, and Sicily. Approaches, themes, and periods (both ancient city and receptions of city from classical antiquity to modern era) vary depending on individual instructor and topic. May be repeated for credit with topic change. P/NP or letter grading.

**152B. Ancient City: Roman World (4)** Lecture, three hours. Enforced requirement: course 20 or 51B or Art History 20 or History 1A. Range of interdisciplinary approaches to study of Rome and/or cities of Italy and Roman Empire. Approaches, themes, and periods (both ancient city and receptions of city from classical antiquity to modern era) vary depending on individual instructor and topic. May be repeated for credit with topic change. P/NP or letter grading.

**153A. Minoan Art and Archaeology (4)** (Same as Art History M111.) Lecture, three hours. Requirement: course 10 or 51A or Art History 20. Study of development of art and architecture in Minoan Crete from circa 3000 to 1000 BC. P/NP or letter grading.

**153B. Mycenaean Art and Archaeology (4)** (Same as Art History M112A.) Lecture, three hours. Requirement: course 10 or 51A or Art History 20. Study of development of art and architecture in Mycenaean Greece from circa 2000 to 1000 BC. P/NP or letter grading.

**153C. Archaic Greek Art and Archaeology (4)** (Same as Art History M112B.) Lecture, three hours. Requirement: course 10 or 51A or Art History 20. Study of development of art and architecture of Greek world from approximately 800 through 490 BC. P/NP or letter grading.

**153D. Classical Greek Art and Archaeology (4)** (Same as Art History M112C.) Lecture, three hours. Requirement: course 10 or 51A or Art History 20. Study of development of art and architecture of Greek world from approximately 490 through 350 BC. P/NP or letter grading.

**153E. Hellenistic Greek Art and Archaeology (4)** (Same as Art History M112D.) Lecture, three hours. Requirement: course 10 or 51A or Art History 20. Study of development of art and architecture of Greek world from middle of 4th century BC, including transmittal of Greek art forms to Romans. P/NP or letter grading.

**153F. Etruscan Art and Archaeology (4)** (Same as Art History M113A.) Lecture, three hours. Requirement: course 20 or 51B or Art History 20. Arts of Italic peninsula from circa 1000 BC to end of Roman Republic. P/NP or letter grading.

**153G. Roman Art and Archaeology (4)** (Same as Art History M113B.) Lecture, three hours. Requirement: course 20 or 51B or Art History 20. Art and architecture of Rome and its Empire from circa 300 BC to AD 300. P/NP or letter grading.

**153H. Late Roman Art (4)** (Same as Art History M113C.) Lecture, three hours. Requirement: course 20 or 51B or Art History 20. Art of Roman Empire from 2nd through 4th century (AD). P/NP or letter grading.

**153I. Classical Archaeology: Greco-Roman Architecture (4)** (Same as Art History M114A.) Lecture, three hours. Requirement: one course from 10, 20, 51A, 51B, Art History 20, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading.

**153J. Classical Archaeology: Greco-Roman Sculpture (4)** (Same as Art History M114B.) Lecture, three hours. Requirement: one course from 10, 20, 51A, 51B, Art History 20, or History 1A. Knowledge of Greek and Latin not re-

quired. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading.

**153K. Classical Archaeology: Greco-Roman Painting (4)** (Same as Art History M114C.) Lecture, three hours. Requirement: one course from 10, 20, 51A, 51B, Art History 20, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. May be repeated for credit with department consent. P/NP or letter grading.

**153L. Late Antique Art and Architecture (4)** (Same as Art History CM115A.) Lecture, three hours. Art and architecture of late Roman Empire and early Christian world. P/NP or letter grading.

**160. Legal Advocacy in Ancient World (4)** Lecture, three hours; discussion, one hour (when scheduled). Requirement: course 10 or 20. Study of theory and practice of legal advocacy in classical Greece and Rome. May be repeated for credit. Letter grading.

**161. Women's History in Ancient Mediterranean (4)** Lecture, three hours. Overview of approaches to problem of writing women's history in ancient Mediterranean world. Topics include law, medicine, work, religion (pagan, Christian, Jewish), and literature, with particular attention to themes of war, slavery, and sex trafficking. Exercises train students in critical use of primary documents and ancient sources, including inscriptions and other forms of material culture. P/NP or letter grading.

**162. Reception of Ancient Myth (4)** Lecture, three hours. Traces reading and re-use of myth from antiquity to present, including global receptions in areas such as literature, philosophy, art, film, and politics. May be repeated once for credit with topic change. P/NP or letter grading.

**163. Ovid and Consequences (4)** Lecture, three hours. Study of Ovid's Metamorphoses and persistence and extent of Roman poet's influence on subsequent literature, art, and film. Close analysis of Ovid's seminal text before turning to poem's classical, medieval, Renaissance, and modern imitators, from Apuleius to Shakespeare to Picasso and beyond. P/NP or letter grading.

**164. Spectacle Entertainments of Ancient Rome (4)** Lecture, three hours. Requirement: course 20. Study of culture and politics of urban entertainment in ancient Rome, including gladiatorial competitions, chariot races, and theatrical productions. P/NP or letter grading.

**165. Ancient Athletics (4)** Lecture, three hours. Requirement: course 10 or History 1A. Study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art. P/NP or letter grading.

**166A. Greek Religion (4)** Lecture, three hours. Requirement: course 10 or 30. Study of religion of ancient Greeks. P/NP or letter grading.

**166B. Roman Religion (4)** Lecture, three hours. Requirement: course 20. Study of religion of ancient Romans. P/NP or letter grading.

**167. Magic in Ancient World (4)** (Same as Ancient Near East M167.) Lecture, three hours; discussion, one hour (when scheduled). Requirement: course 10 or 20. Exploration of art of influencing natural course of events by occult means as practiced in ancient world at large. Coverage of beliefs in supernatural forces, rites aimed at controlling these forces effectively, and character and social roles of ritual experts in various cultures of ancient world. Source material includes types of magical spells, literary texts about magic and magicians, and artifacts such as amulets and ritual implements. P/NP or letter grading.

**168. Comparative Mythology (4)** Lecture, three hours. Requirements: course 30, or GE Clusters 30A, 30B, and 30CW. Religious, mythical, and/or historical traditions of Greece and Rome compared with each other and with other traditions worldwide. P/NP or letter grading.

**169. Sex in Ancient World (4)** Lecture, three hours. Requirement: course 10 or 20 or History 1A. Examination of sex and gender systems of Greek and Roman cultures in ancient Mediterranean world. What Greek and Roman sex/gender systems were, how they changed over time, and difference it makes. Readings include both modern theories about sex and history as foundation for course and broad range of ancient texts in translation. P/NP or letter grading.

**170C. Power and Imagination in Byzantium (4)** (Same as History M116C.) Lecture, three hours; discussion, one hour (when scheduled). Requirements: History 116A, 116B. Designed for juniors/seniors. Study of relations of authority and intelligentsia in highly centralized Byzantine Empire. Topics include criticism of emperor, iconoclasm, intellectual freedom, attempts at reform. Letter grading.

**171. Black Classicism: African American Receptions of Classical Antiquity (4)** Lecture, three hours. Study of reception of Greco-Roman antiquity, especially literature, by Black intellectuals, poets, novelists, and artists. Readings pair ancient texts with works by major African American writers (Dove, Ellison,

Morrison) alongside scholarly discourse on *Classica Africana*. Also covers aspects of history of discipline of classics in U.S. with focus on Black experience. P/NP or letter grading.

**175. Classics in Central and South America (4)** Lecture, three hours. Introduction to topics in classical reception through investigation of influence of Greco-Roman poetry on poetry of Central and South America of colonial period and beyond. From Homer to Vergil, poets of classical antiquity established robust tradition of epic with well-established literary tropes and nationalistic aims, cultural voice contributing to development of unified sense of national identity. Classical definition of epic as genre and sense of epic as vehicle for affirming and questioning national identity persisted well beyond antiquity. Investigation of one such area by examining epic traditions of Central and South America, (mediated through European models that preceded and helped shape them) and their conscious engagement with classical tradition, through examples of both neo-Latin productions and vernacular poetry in Spanish and Portuguese. P/NP or letter grading.

**180. Introduction to Classical Linguistics (4)** Lecture, three hours. Requisite: Greek 3 or Latin 3. Linguistic approach to Greek and Latin, including Indo-European background, etymology, pronunciation, alphabets, sociolinguistics (dialects, bilingualism), and applications to classical literature. P/NP or letter grading.

**185. Origins and Nature of English Vocabulary (5)** Lecture, three hours. Origins and nature of English vocabulary, from Proto-Indo-European prehistory to current slang. Topics include Greek and Latin component in English (including technical terminology), alphabet and English spelling, semantic change and word formation, vocabulary in literature and film. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Classics (1)** Seminar, one hour. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**191. Capstone Seminar: Classics (5)** Seminar, three hours. Requisites: courses 10, 20, at least four upper-division major courses. Limited to declared junior/senior departmental majors; minors may be admitted with consent of instructor. Topical research seminar on important themes, periods, genres of ancient Greek and Roman world. Intended to provide students with opportunity for serious engagement with research in discipline under close faculty supervision. Readings, discussions, oral presentations, and final research paper or project. May be repeated for credit. Letter grading.

**193. Journal Club Seminars: Classics (1)** Seminar, one hour. Limited to undergraduate students. Group discussion of readings and topics selected from current issues in classics and related disciplines. May be repeated for credit. P/NP grading.

**197. Individual Studies in ClassicS. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Classics (2)** Tutorial, six hours. Requisite: course 191. Limited to junior/senior departmental honors program students. Tutorial under direct supervision of faculty member. Research and development of thesis outline in preparation of paper to be completed in course 198B. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Classics (5)** Tutorial, 15 hours. Requisite: course 198A. Limited to junior/senior departmental honors program students. Completion of final research thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in ClassicS. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. History of Classical Scholarship (4)** Lecture, four hours. S/U or letter grading.

**201B. Topics in Ancient History: Roman World. (2, 4)** Seminar, three hours. Introduction to basic methods and approaches to study of Roman history by intensive examination of selected topics, including readings of ancient texts and modern scholarship. S/U or letter grading.

**218. Paleography of Latin and Vernacular Manuscripts, 900 to 1500 (4)** (Same as English M215, French M210, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

**220A. Interfaces: Transmission of Roman Literature. (2, 4)** Seminar, three hours. Examination of transmission of Latin classical literature in late antiquity, Middle Ages, and Renaissance to understand processes by which Latin literature has been preserved. S/U (2-unit course) or letter (4-unit course) grading.

**244. Textual Criticism: Studies in Preparation of Critical Edition of Greek and/or Latin TextS. (2, 4)** Seminar, three hours. Different steps required in preparation of critical edition of ancient text: localizing manuscripts; collation; establishing stemma; selecting right reading on basis of knowledge of context, of language of author, and of sources; emendations; formulation of apparatus criticus and apparatus fontium. S/U (2-unit course) or letter (4-unit course) grading.

**245. Computing and ClassicS. (2, 4)** Seminar, three hours. Introduction to processing and analysis of digitized texts of classical authors for purposes of literary history and criticism. S/U (2-unit course) or letter (4-unit course) grading.

**246. Greek and Latin Meter. (2, 4)** Seminar, three hours. Comprehensive study of meter as it functions in classical poetry. S/U (2-unit course) or letter (4-unit course) grading.

**250. Topics in Greek and Roman Culture and Literature. (2, 4)** Seminar, three hours. Interdisciplinary study on topics of ancient Greek and Roman culture and/or literature. May be repeated for credit with topic change. S/U or letter grading.

**251A. Seminar: Classical Archaeology—Aegean Bronze Age. (2, 4)** Seminar, three hours. S/U or letter grading.

**251B. Seminar: Classical Archaeology—Greco-Roman Architecture. (2, 4)** Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman architecture. S/U (2-unit course) or letter (4-unit course) grading.

**251C. Seminar: Classical Archaeology—Greco-Roman Sculpture. (2, 4)** Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman sculpture. S/U (2-unit course) or letter (4-unit course) grading.

**251D. Seminar: Classical Archaeology—Greco-Roman Painting. (2, 4)** Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman painting. May be repeated for credit with consent of instructor. S/U or letter grading.

**C251E. Archaeological Field Techniques (12)** Off-campus field archaeology, 36 hours. Preparation: at least one classical archaeology course. Training in techniques of archaeological research in field, including topographic and area survey, mapping and recording artifacts, excavation and data analysis. Conducted in Mediterranean area. Concurrently scheduled with course C151E. S/U or letter grading.

**252. Topography and Monuments of AthensS. (2, 4)** Lecture, two or four hours. Detailed studies in topography and monuments of Athens, combining evidence of literature, inscriptions, and actual remains. S/U or letter grading.

**253. Topography and Monuments of RomeE. (2, 4)** Lecture, two or four hours. Detailed studies in topography and monuments of ancient Rome, combining evidence of literature, inscriptions, and actual remains. S/U or letter grading.

**260. Topics in Ancient ReligioN. (2, 4)** Seminar, three hours. S/U or letter grading.

**287. Graduate Colloquium in Classical Literature (2)** Seminar, three hours. Survey of basic methods of and approaches to classical scholarship, including textual criticism, literary interpretation and theory, hermeneutics, interdisciplinary studies, and computer applications to classics. Emphasis varies from year to year, depending on instructor(s). May be repeated for credit with topic change. S/U grading.

**288. Literary TheoryY. (2, 4)** Discussion, three hours. Designed for graduate students. Introduction to chief texts in literary theory and criticism for readers of classical literature, with application to classical texts. S/U or letter grading.

**495. Teaching Classics (2)** Seminar, two hours. Normally to be taken by all graduate students in term before or during their first assignments as teaching assistants. Seminar/workshop in various pedagogical issues and strategies in preparation for teaching classical civilization, Greek, and/or Latin undergraduate courses. Readings and group discussions in topics related to teaching in field of classics. May not be applied toward MA or PhD course requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Study for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. Research for PhD Dissertation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Greek Courses

### Lower Division

**1. Elementary Greek (5)** Lecture, three hours; discussion, two hours. P/NP or letter grading.

**2. Elementary Greek (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 1. P/NP or letter grading.

**3. Elementary Greek (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 2. P/NP or letter grading.

**8A. Elementary Modern Greek (4)** Lecture, three hours. Introduction to basic elements of modern Greek conversation for beginning students, including those with some knowledge of ancient (Attic) Greek. Conducted in modern Greek, with in-class conversation drills, regular homework assignments, and weekly quizzes. P/NP or letter grading.

**8B. Elementary Modern Greek (4)** Lecture, three hours. Enforced requisite: course 8A. Introductory modern Greek sequence, with emphasis on spoken modern Greek. P/NP or letter grading.

**8C. Elementary Modern Greek (4)** Lecture, three hours. Enforced requisite: course 8B. Introductory modern Greek sequence, with emphasis on spoken modern Greek. P/NP or letter grading.

**8G. Reading Scholarly Modern Greek (4)** Lecture, two and one half hours. Designed for students who want to develop literacy competence in order to read modern Greek scholarly texts. No prior knowledge of modern Greek is required. Covers grammatical concepts and forms necessary to comprehend written academic Greek. Students gain familiarity with various academic genres in Greek (among others, articles, chapters, reviews, lecture transcripts). Emphasis on grammar and reading strategies that enable location, selection, and comprehension of texts central to research needs. Students are familiarized with major stylistic features of contemporary academic

modern Greek, and consolidate their competence through reading, translating, and writing activities. Familiarization with basic aspects of modern Greek life and culture. P/NP or letter grading.

**9A. Intermediate Modern Greek (4)** Lecture, three hours. Enforced requisite: course 8C. Course 9A is enforced requisite to 9B, which is enforced requisite to 9C. Intermediate-level program in modern Greek language study from communicative and task-based approach. Continued development of student understanding and use of Greek syntax and morphology through oral and written activities, reading, and listening. Students master basic communication skills, communicate in everyday real-life situations, comprehend simple passages, announcements, and advertisements, master basic rules of modern Greek grammar and syntax, read fluently, and write accurately. P/NP or letter grading.

**9B. Intermediate Modern Greek (4)** Lecture, three hours. Enforced requisite: course 9A. Intermediate-level program in modern Greek language study from communicative and task-based approach. Continued development of student understanding and use of Greek syntax and morphology through oral and written activities, reading, and listening. Students master basic communication skills, communicate in everyday real-life situations, comprehend simple passages, announcements, and advertisements, master basic rules of modern Greek grammar and syntax, read fluently, and write accurately. P/NP or letter grading.

**9C. Intermediate Modern Greek (4)** Lecture, three hours. Enforced requisite: course 9B. Intermediate-level program in modern Greek language study from communicative and task-based approach. Continued development of student understanding and use of Greek syntax and morphology through oral and written activities, reading, and listening. Students master basic communication skills, communicate in everyday real-life situations, comprehend simple passages, announcements, and advertisements, master basic rules of modern Greek grammar and syntax, read fluently, and write accurately. P/NP or letter grading.

**15. Elementary Modern Greek (12)** Lecture, 18 to 19 hours. Eight-week intensive introduction to principles of speaking, reading, and writing modern (demotic) Greek. Offered in summer only. P/NP or letter grading.

**16. Intensive First-Year Greek (12)** Lecture, 19 hours. Eight-week intensive introduction to Greek language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Intermediate Greek I (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3 or 16. Formal review of Greek grammar and syntax and development of skills in reading original texts of Greek prose. Readings selected to introduce literature and culture of ancient Greece. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Intermediate Greek II: Readings in Greek (4)** Lecture, three hours. Requisite: course 20. Introduction to developing skills of reading longer, continuous passages of original Greek prose and/or poetry texts, with attention to literary and cultural background. Course is normally requisite to other courses in Greek 100 series. May be repeated for credit with change of assigned readings and with consent of instructor. P/NP or letter grading.

**101A. Homer: Odyssey (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**101B. Homer: *Iliad* (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**102. Lyric Poets (4)** Lecture, three hours. Requisite: course 100. Selections from Archilochus to Bacchylides. P/NP or letter grading.

**103. Aeschylus (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**104. Sophocles (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**105. Euripides (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**106. Aristophanes (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**107. Hesiod (4)** Lecture, three hours. Requisite: course 100. Reading of *Theogony* and excerpts from *Works and Days*, with emphasis on Hesiod's place in Greek literature and his role in transmission of Greek mythology. P/NP or letter grading.

**110. Study of Greek Prose (4)** Lecture, three to four hours. Requisite: course 100. Work in sight reading and grammatical analysis of Attic prose texts; writing Attic prose. P/NP or letter grading.

**111. Herodotus (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**112. Thucydides (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**113. Attic Orators (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**115. Xenophon (4)** Lecture, three hours. Requisite: course 100. Reading of one major work of Xenophon—*Memorabilia*, *Cyropaedia*, *Anabasis*, *Hellenica*, or *Oeconomicus*—in Greek. P/NP or letter grading.

**121. Plato (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**122. Plato: *Republic* (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**123. Aristotle: *Poetics and Rhetoric* (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**124. Aristotle: *Ethics* (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**130. Readings in New Testament (4)** Lecture, three hours. Requisite: course 3. P/NP or letter grading.

**131. Readings in Later Greek (4)** Lecture, three hours. Requisite: course 100. Topics vary from year to year and include Longinus, *On Sublime*; Marcus Aurelius; Arrian; Second Sophistic; Plutarch; later epic; epigram; epistolographi Graeci. P/NP or letter grading.

**132. Survey of Byzantine Literature (4)** Lecture, three hours. Requisite: course 100. Readings based on (1) *Anthology of Byzantine Prose*, ed. Nigel Wilson and (2) *Oxford Book of Medieval and Modern Greek Verse*, ed. C.A. Trypanis, or if unavailable, *Poeti bizantini*, ed. R. Cantarella. In addition, necessary historical and cultural background provided by readings and lectures. P/NP or letter grading.

**133. Readings in Byzantine Literature (4)** Lecture, three hours. Requisite: course 132. Topics vary from year to year and include Procopius, Agathias, Michael Psellus, *Alexiad* of Anna Comnena, and *Digenis Akritas*. P/NP or letter grading.

**140. Topics in Greek Language and Culture (4)** Seminar, three hours. Requisite: course 9C. Covers topics in modern Greek language, culture, and history. Assigned materials are predominantly in modern Greek. Topics and geographical focus are diverse, ranging from literature and cinema to culture and history of Greek America. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Greek. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Greek. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. History of Greek Literature (4)** Lecture, three hours. Lectures on history of Greek literature, supplemented by reading of Greek texts in original language. May be taken independently for credit. S/U or letter grading.

**200B. History of Greek Literature (4)** Lecture, three hours. Lectures on history of Greek literature, supplemented by reading of Greek texts in original language. May be taken independently for credit. S/U or letter grading.

**200C. History of Greek Literature (4)** Lecture, three hours. Lectures on history of Greek literature, supplemented by reading of Greek texts in original language. May be taken independently for credit. S/U or letter grading.

**201A. Homer: *Iliad*. (2, 4)** Lecture, three hours. Course 201A is requisite to 201B. S/U (2-unit course) or letter (4-unit course) grading.

**201B. Homer: *Iliad*. (2, 4)** Lecture, three hours. Requisite: course 201A. S/U (2-unit course) or letter (4-unit course) grading.

**202A. Homer: *Odyssey and Epic Cycle*. (2, 4)** Lecture, three hours. Course 202A is requisite to 202B. S/U (2-unit course) or letter (4-unit course) grading.

**202B. Homer: *Odyssey and Epic Cycle*. (2, 4)** Lecture, three hours. Requisite: course 202A. S/U (2-unit course) or letter (4-unit course) grading.

**203. Hesiod. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**204. Homeric Hymns. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**205. Aeschylus. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**206A. Sophocles. (2, 4)** Lecture, three hours. Course 206A is requisite to 206B. S/U (2-unit course) or letter (4-unit course) grading.

**206B. Sophocles. (2, 4)** Lecture, three hours. Requisite: course 206A. S/U (2-unit course) or letter (4-unit course) grading.

**207A. Euripides. (2, 4)** Lecture, three hours. Course 207A is requisite to 207B. S/U (2-unit course) or letter (4-unit course) grading.

**207B. Euripides. (2, 4)** Lecture, three hours. Requisite: course 207A. S/U (2-unit course) or letter (4-unit course) grading.

**208A. Aristophanes. (2, 4)** Lecture, three hours. Course 208A is requisite to 208B. S/U (2-unit course) or letter (4-unit course) grading.

**208B. Aristophanes. (2, 4)** Lecture, three hours. Requisite: course 208A. S/U (2-unit course) or letter (4-unit course) grading.

**209A. Seminar: *Hellenistic Poetry*. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**209B. Seminar: *Hellenistic Poetry*. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**210. Advanced Greek Prose Composition (4)** Lecture, three hours. Requisite: course 110. S/U or letter grading.

**211A. Herodotus. (2, 4)** Lecture, three hours. Course 211A is requisite to 211B. S/U (2-unit course) or letter (4-unit course) grading.

**211B. Herodotus. (2, 4)** Lecture, three hours. Requisite: course 211A. S/U (2-unit course) or letter (4-unit course) grading.

**212A. Thucydides. (2, 4)** Lecture, three hours. Course 212A is requisite to 212B. S/U (2-unit course) or letter (4-unit course) grading.

**212B. Thucydides. (2, 4)** Lecture, three hours. Requisite: course 212A. S/U (2-unit course) or letter (4-unit course) grading.

**213. Greek Historiography. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**214. Demosthenes. (2, 4)** Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**215. Early Greek Orators. (2, 4)** Seminar, three hours. Studies in works of Antiphon, Andocides, and Lysias. S/U (2-unit course) or letter (4-unit course) grading.

**216. Menander. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**217A. Greek Lyric Poetry: Archaic Lyric. (2, 4)** Seminar, three hours. Study of lyric poetry of Archaic period, both choral and monodic, with elegiac and iambic included. May be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading.

**217B. Greek Lyric Poetry: Pindar and Bacchylides. (2, 4)** Seminar, three hours. Study of choral odes of Pindar and Bacchylides, with special attention to conventions of epinician. May be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading.

**220. Greek Novel. (2, 4)** Seminar, three hours. Study of Greek romance and its place in Greek literature. Two texts (Chariton: Chaereas and Callirhoe and Longus: Daphnis and Chloe) studied in some detail. S/U (2-unit course) or letter (4-unit course) grading.

**221. Pre-Socratic Philosophers. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**222A. Plato. (2, 4)** Lecture, three hours. Course 222A is requisite to 222B. S/U (2-unit course) or letter (4-unit course) grading.

**222B. Plato. (2, 4)** Lecture, three hours. Requisite: course 222A. S/U (2-unit course) or letter (4-unit course) grading.

**223A. Aristotle. (2, 4)** Lecture, three hours. Course 223A is requisite to 223B. S/U (2-unit course) or letter (4-unit course) grading.

**223B. Aristotle. (2, 4)** Lecture, three hours. Requisite: course 223A. S/U (2-unit course) or letter (4-unit course) grading.

**224. Post-Aristotelian Philosophy. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**226. Imperial Greek Literature. (2, 4)** Seminar, three hours. Study of Greek literature of Roman Empire with attention to various authors, genres, and themes. S/U or letter grading.

**229. Strengthening Greek (4)** Seminar, three hours. Grammar review, vocabulary development, and translation skills practice in reading ancient Greek texts across variety of genres and periods. S/U or letter grading.

**240A. History of Greek Language. (2, 4)** Lecture, four hours. Course 240A is requisite to 240B. Linguistic history of classical Greek. S/U or letter grading.

**240B. History of Greek Language. (2, 4)** Lecture, four hours. Requisite: course 240A. Postclassical, medieval, and modern Greek. S/U or letter grading.

**241. Greek Epigraphy. (2, 4)** Seminar, three hours. Survey of Greek historical inscriptions, chiefly Attic. S/U (2-unit course) or letter (4-unit course) grading.

**242. Greek Dialects and Historical Grammar (2, 4)** Lecture, three hours. Linguistic situation in early Greece. Readings in classical Greek dialectal texts. Greek grammar in context of common Greek and Indo-European linguistics. S/U or letter grading.

**243. Mycenaean Greek (2, 4)** Seminar, three hours. Script, language, and grammar of Linear B inscriptions; their relevance to ancient Greek linguistic and cultural history. S/U or letter grading.

**244. Greek Papyrology (2, 4)** Seminar, three hours. Preparation: reading knowledge of Greek. Introduction to Greek papyri, considered both as historical documents and as carriers of literature. S/U (2-unit course) or letter (4-unit course) grading.

**245. Greek Palaeography (2, 4)** Seminar, three hours. Studies in development of book hand in Greek manuscripts earlier than invention of printing. S/U (2-unit course) or letter (4-unit course) grading.

**250. Topical Studies of Ancient Greece (2, 4)** Lecture, three hours. Advanced study of some aspect of ancient Greek language, literature, and/or culture. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Study for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. Research for PhD Dissertation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Latin Courses

### Lower Division

**1. Elementary Latin (5)** Lecture, three hours; discussion, two hours. P/NP or letter grading.

**1G. Elementary Latin for Graduate Students. (0)** Lecture, eight hours. Concurrently scheduled with course 14. No grading.

**2. Elementary Latin (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 1. P/NP or letter grading.

**3. Elementary Latin (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 2 or 14. P/NP or letter grading.

**14. Elementary Latin: Intensive (10)** Lecture, 10 hours. Declensions of nouns and adjectives, conjugations in indicative mood, and primary uses of subjunctive mood. Emphasis on development of ability to read easy selections of classical prose. P/NP or letter grading.

**16. Intensive First-Year Latin (12)** Lecture, 19 hours. Eight-week intensive introduction to Latin language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Intermediate Latin I (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3 or 16. Formal review of Latin grammar and syntax and development of skills in reading original texts of Latin prose. Readings selected to introduce literature and culture of ancient Rome. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Intermediate Latin II: Readings in Latin (4)** Lecture, three hours. Enforced requisite: course 20. Introduction to developing skills of reading longer, continuous passages of original Latin prose and/or poetry texts, with attention to literary and cultural background. Course is requisite to advanced reading courses. May be repeated for credit twice with change of assigned readings and with consent of instructor. P/NP or letter grading.

**101. Plautus (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**102. Terence (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**103. Lucretius (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**104. Ovid (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**105A. Beginning Vergil: Selections from Aeneid I-VI (4)** Lecture, three hours. Requisite: course 100. Reading of one or more books from first half of Aeneid, designed especially for students with only limited experience in reading Latin poetry. May be repeated for credit with change in readings and consent of instructor. P/NP or letter grading.

**105B. Advanced Vergil (4)** Lecture, three hours. Requisite: course 105A. Reading and discussion of Vergil's Eclogues, Georgics, and/or second half of Aeneid. May be repeated for credit with change in readings. P/NP or letter grading.

**106. Catullus (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**107. Horace (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**108. Roman Elegy (4)** Lecture, three hours. Requisite: course 100. Selections from Catullus, Tibullus, and Propertius. P/NP or letter grading.



**109. Roman Satire (4)** Lecture, three hours. Requisite: course 100. Readings from author(s) of Roman satire, including Horace, Persius, and Juvenal, or related satiric texts. May be repeated for credit with change in readings and consent of instructor. P/NP or letter grading.

**110. Study of Latin Prose (4)** Lecture, three hours. Requisite: course 100. Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose. P/NP or letter grading.

**111. Livy (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**112. Tacitus (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**113. Cicero: Orations (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**114. Roman Epistolography: Cicero and Pliny (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**115. Caesar (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**116. Roman Novel (4)** Lecture, three hours. Requisite: course 100. Reading and discussion of either Petronius' *Satyricon* or Apuleius' *Metamorphoses* and development of genre of prose novel in antiquity. May be repeated for credit with change in author and text. P/NP or letter grading.

**117. Sallust (4)** Lecture, three hours. Requisite: course 100. P/NP or letter grading.

**118. Seneca (4)** Lecture, three hours. Requisite: course 100. Selection of Seneca's works read in Latin. P/NP or letter grading.

**119A. Readings in Roman Prose (4)** Lecture, three hours. Requisite: course 100. Readings of selected Roman prose author(s). Topics may vary from year to year and may be organized in terms of chronology (Republican or imperial), literary genre (Roman biography, antiquarian learning, or science), and/or theme. May be repeated for credit with topic change. P/NP or letter grading.

**119B. Readings in Roman Poetry (4)** Lecture, three hours. Requisite: course 100. Readings of selected Roman poetry author(s). Topics may vary from year to year and may be organized in terms of chronology (Republican or imperial), epic, lyric, elegy, and/or theme. May be repeated for credit with topic change. P/NP or letter grading.

**120. Vulgate (4)** Lecture, three hours. Requisite: course 3. Reading of selected chapters of St. Jerome's translation of Bible, with emphasis on unclassical features of Latin. P/NP or letter grading.

**121. Patristic Texts (4)** Lecture, three hours. Requisite: course 100. Reading and discussion of one or more Latin patristic texts (especially works of Ambrose, Augustine, and/or Jerome), with emphasis on specific features of patristic, as opposed to classical, Latin. P/NP or letter grading.

**130. Introduction to Postclassical Latin (4)** Lecture, three hours. Basic competence in classical Latin required. Readings in postclassical Latin. P/NP or letter grading.

**131. Postclassical Latin Prose (4)** Lecture, three hours. Advanced readings of selected texts in postclassical Latin prose. P/NP or letter grading.

**133. Postclassical Latin Poetry (4)** Lecture, three hours. Advanced readings of selected texts in postclassical Latin poetry. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Latin. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Latin. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. History of Latin Literature (4)** Lecture, three hours. Lectures on history of Latin literature, supplemented by reading of Latin texts in original language. May be taken independently for credit. S/U or letter grading.

**200B. History of Latin Literature (4)** Lecture, three hours. Lectures on history of Latin literature, supplemented by reading of Latin texts in original language. May be taken independently for credit. S/U or letter grading.

**200C. History of Latin Literature (4)** Lecture, three hours. Lectures on history of Latin literature, supplemented by reading of Latin texts in original language. May be taken independently for credit. S/U or letter grading.

**201. Roman Epic Tradition. (2, 4)** Seminar, three hours. Close study of one epic poet other than Vergil (e.g., Ennius, Lucan, Valerius Flaccus, Statius, Silius Italicus), with attention to literary tradition of epic. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

**202. Seminar: Catullus. (2, 4)** Seminar, three hours. Detailed consideration of entire Catullan corpus. S/U (2-unit course) or letter (4-unit course) grading.

**203A. Elegiac Poetry. (2, 4)** Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**203B. Propertius. (2, 4)** Lecture, three hours. Course 203A is not requisite to 203B. S/U (2-unit course) or letter (4-unit course) grading.

**204A. Vergil's Aeneid. (2, 4)** Lecture, three hours. Course 204A is requisite to 204B. S/U (2-unit course) or letter (4-unit course) grading.

**204B. Vergil's Aeneid. (2, 4)** Lecture, three hours. Requisite: course 204A. S/U (2-unit course) or letter (4-unit course) grading.

**205A. Seminar: Vergil's Bucolics. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**205B. Seminar: Vergil's Georgics. (2, 4)** Seminar, three hours. Course 205A is not requisite to 205B. Close reading of Vergil's text; careful evaluation of influential criticism on poem, much of it recent; examination of work's place within tradition of rural poetry. S/U (2-unit course) or letter (4-unit course) grading.

**206. Horace. (2, 4)** Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**207. Roman Comedy. (2, 4)** Seminar, three hours. Survey of history of Roman comedy. S/U (2-unit course) or letter (4-unit course) grading.

**208. Ovid. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**209. Seminar: Roman Satire. (2, 4)** Seminar, three hours. Detailed study of one individual satirist, with attention to his position in development of satirical genre in Roman literature. Choice of author varies from year to year. Close study of text, of characteristics of writer as social critic and artist, and of contemporary literary and social environment. S/U (2-unit course) or letter (4-unit course) grading.

**210. Advanced Latin Prose Composition (4)** Lecture, three hours. Requisite: course 110. S/U or letter grading.

**211A. Seminar: Roman Historians—Sallust. (2, 4)** Seminar, three hours. Study of considerable portions of writings of Sallust. May be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading.

**211B. Seminar: Roman Historians—Livy. (2, 4)** Seminar, three hours. Study of considerable portions of writings of Livy. May be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading.

**211C. Seminar: Roman Historians—Tacitus. (2, 4)** Seminar, three hours. Study of considerable portions of writings of Tacitus. May be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading.

**214. Ancient Biography: Roman Lives. (2, 4)** Seminar, three hours. Study of biography in ancient Rome. Literary survey or focused readings on lives of Cornelius Nepos, Suetonius, Tacitus, or imperial chroniclers of 4th century CE. S/U (2-unit course) or letter (4-unit course) grading.

**215. Seminar: Roman Novel. (2, 4)** Seminar, three hours. Works such as Petronius' *Satyricon* and Apuleius' *Metamorphoses*: study of literary problems. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

**216. Roman Rhetoric. (2, 4)** Seminar, three hours. Close study of one rhetorical text (e.g., *Rhetorica ad Herennium*, Cicero's *de Oratore*, Seneca's *Controversiae* or *Suasoriae*, Quintilian's *Institutio*), with attention to its place in rhetorical tradition. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

**220. Cicero's Orations. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**221A. Cicero's Philosophical Works. (2, 4)** Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**221B. Cicero: De Natura Deorum. (2, 4)** Lecture, three hours. Course 221A is not requisite to 221B. S/U (2-unit course) or letter (4-unit course) grading.

**222. Seminar: Roman Stoicism. (2, 4)** Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**223. Lucretius. (2, 4)** Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

**224. Seneca. (2, 4)** Seminar, three hours. Detailed study of one work of prose or poetry by younger Seneca. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

**229. Strengthening Latin (4)** Seminar, three hours. Grammar review, vocabulary development, and translation skills practice in reading Latin texts across variety of genres and periods. S/U or letter grading.

**231A. Seminar: Medieval Latin. (2, 4)** Seminar, three hours. Preparation: at least one upper-division Latin course. Course 231A is not requisite to 231B. Studies in various areas of language and literature of medieval Latin. May be repeated for credit with consent of instructor. S/U (2-unit course) or letter (4-unit course) grading.

**231B. Seminar: Medieval Latin. (2, 4)** Seminar, three hours. Preparation: at least one upper-division Latin course. Course 231A is not requisite to 231B. Studies in various areas of language and literature of medieval Latin. May be repeated for credit with consent of instructor. S/U (2-unit course) or letter (4-unit course) grading.

**232. Vulgar Latin. (2, 4)** Lecture, three hours. History and characteristics of popular Latin; its development into early forms of Romance languages. S/U or letter grading.

**235. Late Latin Poetry. (2, 4)** Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several poets who flourished between death of Ovid and fall of Roman Empire. May be repeated for credit with change in author. S/U or letter grading.

**236. Late Latin Prose. (2, 4)** Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several prose authors who flourished between death of Tacitus and fall of Roman Empire. May be repeated for credit with change in author. S/U or letter grading.

**240. History of Latin Language. (2, 4)** Lecture, three hours. Development of Latin from earliest monuments until its emergence in Romance languages. S/U or letter grading.

**242. Italic Dialects and Latin Historical Grammar. (2, 4)** Lecture, three hours. Linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in context of Italic and Indo-European linguistics. S/U or letter grading.

**243. Seminar: Latin Palaeography. (2, 4)** Seminar, three hours. Studies in development of book hand in Latin manuscripts earlier than invention of printing. S/U (2-unit course) or letter (4-unit course) grading.

**245. Neo-Latin. (2, 4)** Seminar, three hours. Preparation: at least two upper-division Latin courses. Requisite: course 100. Survey of texts by one or more authors from Renaissance to present, written on related topics. S/U or letter grading.

**250. Topical Studies of Ancient Rome. (2, 4)** Seminar, three hours. Advanced study of some aspect of Latin language or literature or Roman culture. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

**495. College Teaching of Latin (2)** Seminar, to be arranged. Preparation: appointment as teaching assistant. Methodology of instruction in conjunction with classroom practice. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Study for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. Research for PhD Dissertation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Cluster Program Clusters Courses

### Lower Division

**M1A. Food: Lens for Environment and Sustainability (6)** (Same as Environment M1A.) Lecture, three hours; discussion, two hours. Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Food as lens for local and global environmental and sustainability issues. Integration of environmental, social, economic, and technological solutions for fair, sustainable, and healthy food production, food security, and access. Focus on human impacts on Earth's biological and physical systems, including how food production and consumption contributes to, and is impacted by, global problems, including climate change, pollution, and overpopulation. Laboratory exercises included in discussions. P/NP or letter grading.

**1B. Food: Lens for Environment and Sustainability (6)** (Same as Environment M1B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M1A. Limited to first-year freshmen. Food as lens for local and global environmental and sustainability issues. Integration of environmental, social, economic, and technological solutions for fair, sustainable, and healthy food production, food security, and access. Focus on human impacts on Earth's biological and physical systems, including how food production and consumption contributes to, and is impacted by, global problems, including climate change, pollution, and overpopulation. Laboratory exercises included in discussions. P/NP or letter grading.

**1CW. Food: Lens for Environment and Sustainability—Special Topics (6)** (Same as Environment M1CW.) Seminar, three hours. Enforced requisite: course M1B. Limited to first-year freshmen. Examination of specialized environmental and sustainability topics as they relate to food, including air, water, biodiversity, climate change, food access, food security, and health. Satisfies Writing II requirement. Letter grading.

**2A. Building Climates (6)** Lecture, two and one half hours; discussion, two hours. Course 2A is requisite to 2B, which is requisite to 2CW. Introduction to historical origins and contemporary social context of climate change through the built environment. Definition of concepts that pertain to the history and science of buildings, cities, and regions; and their adaptation through a just transition. P/NP or letter grading.

**2B. Building Climates (6)** Lecture, two and one half hours; discussion, two hours. Requisite: course 2A. Introduction to historical origins and contemporary social context of climate change through the built environment. Definition of concepts that pertain to the history and science of buildings, cities, and regions; and their adaptation through a just transition. P/NP or letter grading.

**2CW. Building Climates: Special Topics (6)** Seminar, three hours. Requisite: course 2B. Examination of topics related to the built environment as it relates to climate change including decarbonizing infrastructure, environmental justice, urban biodiversity, remote sensing, and aesthetics of the Anthropocene. Satisfies Writing II requirement. Letter grading.

**10A. Data, Justice, and Society (6)** Lecture, three hours; discussion, two hours. Course 10A is requisite to 10B, which is requisite to 10CW or 10WX. Limited to first-year students. Data-based computation (i.e., algorithms, artificial intelligence, predictive modeling) increasingly play a dominant role in shaping everyday experiences of culture and society. Data and data analytics define everything from social relations and public policy to juridical status and market logistics. Introduction to politics, ethics, applications, history, critiques, and social impact of data. Introduction to how data intersects with philosophical inquiries about justice, (inequality, power, and freedom. Students obtain deeper historical and critical view of data in society, while gaining understanding of differing and diverse cultural frames of analysis. P/NP or letter grading.

**10B. Data, Justice, and Society (6)** Lecture, three hours; discussion, two hours. Requisite: course 10A. Limited to first-year students. Data-based computation (i.e., algorithms, artificial intelligence, predictive modeling) increasingly play a dominant role in shaping everyday experiences of culture and society. Data and data analytics define everything from social relations and public policy to juridical status and market logistics. Study pursues thinking about ethics and justice in a data-driven society but focus on concrete case studies. Students gain critical understanding of technology sector, and also learn of community-engaged models of deploying data skills for social justice. P/NP or letter grading.

**10CW. Data, Justice, and Society: Special Topics (6)** Seminar, three hours. Requisite: course 10B. Limited to first-year students. In-depth examination of the politics, ethics, applications, history, critiques, and social impact of data. Further review, analysis, and discussion of how data technologies either impede or work toward social justice. Study continues to provide guidance on honing writing skills in order to produce excellent college essays. Satisfies Writing II requirement. Letter grading.

**10WX. Data, Justice, and Society: Special Topics (6)** Seminar, three hours. Requisite: course 10B. Limited to first-year students. Community-engaged learning course with in-depth examination of the politics, ethics, applications, history, critiques, and social impact of data. Further review, analysis, and discussion of how data technologies either impede or work toward social justice. Study continues to provide guidance on honing writing skills in order to produce excellent college essays. Satisfies Writing II requirement. Letter grading.

**20A. Race and Indigeneity in U.S. (6)** Lecture, three hours; discussion, two hours. Course 20A is enforced requisite to 20B, which is enforced requisite to 20CW. Limited to first-year freshmen. Examination of nature and meaning of race in American society through study of history, literature, and law. Consideration, among other topics, of construction of race as social and cultural category among two or more groups and exploration of ways in which race has shaped understanding of American citizenship. P/NP or letter grading.

**20B. Race and Indigeneity in U.S. (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 20A. Limited to first-year freshmen. Examination of nature and meaning of race in American society through study of history, literature, and law. Consideration, among other topics, of construction of race as social and cultural category among two or more groups and exploration of ways in which race has shaped understanding of American citizenship. P/NP or letter grading.

**20CW. Race and Indigeneity in U.S. (6)** Seminar, three hours. Enforced requisite: course 20B. Limited to first-year freshmen. Consideration of how experience, debates, and issues of race are represented and understood in historical, legal, cinematic, and literary contexts. Satisfies Writing II requirement. Letter grading.

**21A. History of Modern Thought (6)** Lecture, three hours; discussion, two hours. Course 21A is enforced requisite to 21B, which is enforced requisite to 21CW. Limited to first-year freshmen. Introduction to key issues in humanities and social sciences through reading of prominent social theories of past four centuries. Consideration of writers from Rousseau and Wollstonecraft to Foucault and Beauvoir in historical context and from perspectives of academic specialties for which their work is fundamental. Letter grading.

**21B. History of Modern Thought (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 21A. Limited to first-year freshmen. Introduction to key issues in humanities and social sciences through reading of prominent social theories of past four centuries. Consideration of writers from Rousseau and Wollstonecraft to Foucault and Beauvoir in historical context and from perspectives of academic specialties for which their work is fundamental. Letter grading.

**21CW. History of Modern Thought: Special Topics (6)** Seminar, three hours. Enforced requisite: course 21B. Limited to first-year freshmen. Examination of cross-section of classical and modern social theories and debates that shape them. Satisfies Writing II requirement. Letter grading.

**22A. Toward World Economy: Perils and Promises of Globalization (5)** Lecture, three hours; discussion, two hours. Course 22A is enforced requisite to 22B, which is enforced requisite to 22CW. Limited to first-year freshmen. Exploration of causes and mechanisms of globalization as well as its consequences. Critical examination of globalization theories, international institutions of trade, finance, governance, and overall impact of globalization on human society. Letter grading.

**22B. Toward World Economy: Perils and Promises of Globalization (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 22A. Limited to first-year freshmen. Exploration of causes and mechanisms of globalization as well as its consequences. Critical examination of globalization theories, international institutions of trade, finance, governance, and overall impact of globalization on human society. Letter grading.

**22CW. Toward World Economy: Perils and Promises of Globalization—Special Topics (5)** Seminar, three hours. Enforced requisites: course 22B, and English Composition 3 or 3H or English as a Second Language 36. Limited to first-year freshmen. Topics may include global governance, development, and health. Satisfies Writing II requirement. Letter grading.

**23A. Inside Performing Arts: Interdisciplinary Exploration of Performance in Society and Culture (5)** Lecture, four hours; discussion, two hours. Course 23A is enforced requisite to 23B, which is enforced requisite to 23C. Limited to first-year freshmen. Introduction to historical development and evolution of performing arts, aesthetic theories and practices, and political, social, and cultural contexts within which performance has evolved. Letter grading.

**23B. Inside Performing Arts: Interdisciplinary Exploration of Performance in Society and Culture (5)** Lecture, four hours; discussion, two hours. Enforced requisite: course 23A. Limited to first-year freshmen. Introduction to historical development and evolution of performing arts, aesthetic theories and practices, and political, social, and cultural contexts within which performance has evolved. Letter grading.

**23CW. Inside Performing Arts: Interdisciplinary Exploration of Performance in Society and Culture—Special Topics (5)** Seminar, three hours. Enforced requisites: course 23B, and English Composition 3 or 3H or English as a Second Language 36. Limited to first-year freshmen. Topics include origins and ideas of performance, art and performance, and music as cultural expression. Satisfies Writing II requirement. Letter grading.

**24A. Work, Labor, and Social Justice in U.S. (6)** (Same as Labor Studies M1A.) Lecture, three hours; discussion, two hours. Course M24A is enforced requisite to M24B, which is enforced requisite to M24CW. Limited to first-year freshmen. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. Letter grading.

**24B. Work, Labor, and Social Justice in U.S. (6)** (Same as Labor Studies M1B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M24A. Limited to first-year freshmen. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. Letter grading.

**24CW. Work, Labor, and Social Justice in U.S.: Special Topics (6)** (Same as Labor Studies M1CW.) Seminar, three hours. Enforced requisite: course M24B. Limited to first-year freshmen. Topics include labor law/history, gender, race, and workplace. Satisfies Writing II requirement. Letter grading.

**25A. Politics, Society, and Urban Culture in East Asia (6)** Lecture, three hours; discussion, two hours. Course 25A is enforced requisite to 25B, which is enforced requisite to 25CW. Limited to first-year freshmen. Comprehensive exploration of historical evolution of popular East Asian urban culture and interrelationship of East Asian politics, social life, and economic and urban cultural expression. Letter grading.

**25B. Politics, Society, and Urban Culture in East Asia (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 25A. Limited to first-year freshmen. Comprehensive exploration of historical evolution of popular East Asian urban culture and interrelationship of East Asian politics, social life, and economic and urban cultural expression. Letter grading.

**25CW. Politics, Society, and Urban Culture in East Asia: Special Topics (6)** Seminar, three hours. Enforced requisite: course 25B. Limited to first-year freshmen. In-depth examination of issues in historical and contemporary East Asian popular culture. Satisfies Writing II requirement. Letter grading.

**26A. Poverty and Health in Latin America (6)** Lecture, three hours; discussion, two hours. Course 26A is enforced requisite to 26B, which is enforced requisite to 26CW. Limited to first-year freshmen. Introduction to social determinants of health, with focus on cultural, historical, socioeconomic, public health, medical, political, and artistic context of poverty in modern Latin America and on different local, national, and regional responses to health inequities. Exploration of major trends and debates that have shaped and continue to define issues related to poverty and health in region. Letter grading.

**26B. Poverty and Health in Latin America (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 26A. Limited to first-year freshmen. Responses to health inequities and possible solutions to promote improved health outcomes and to social determinants of health illustrated through examples of current programs and policies. Major areas for addressing health inequity include governance, community action, social justice and human rights movements, health sector and public health programs, and global priorities. Introduction to tools to promote health, such as service delivery, health workforce, information systems, access to medicines, health systems financing, and health systems governance. Letter grading.

**26CW. Poverty and Health in Latin America: Special Topics (6)** Seminar, three hours. Enforced requisite: course 26B. Limited to first-year freshmen. Students meet weekly in small group seminars based on topics related to course theme to allow them to study, discuss, and then generate policy solutions to create more equitable healthcare in Latin America. Focus on one particular area of Latin America or one local Latin American community to reflect field study sites to eventually be offered and serve as preparation for summer field study component. Satisfies Writing II requirement. Letter grading.

**27A. Global Islam (6)** (Formerly numbered 27A.) (Same as Islamic Studies M27A.) Lecture, three hours; discussion, two hours. Course M27A is enforced requisite to M27B, which is enforced requisite to M27CW. Introduction to Islam, immensely diverse global tradition which is second largest religion. Study of Islam and Muslims within framework of study of global religious traditions and emphasis on profound diversity of localized belief and practice found across world. Examination of Islam's evolution across 15 centuries,

from late antiquity—when it emerged as localized religion in Central Arabia—to modern era where it is practice from U.S. to Indonesia. Concentration on broad analytical categories in study of religion such as text, culture, history, and prophecy. Students transition to more complex analyses through chronological overview of Islamic history. Study also of case studies of Muslim global networks in arenas such as art, music, literature, and political thought. P/NP or letter grading.

**27B. Global Islam (6)** (Formerly numbered 27B.) (Same as Islamic Studies M27B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M27A. Introduction to Islam, immensely diverse global tradition which is second largest religion. Study of Islam and Muslims within framework of study of global religious traditions and emphasis on profound diversity of localized belief and practice found across world. Examination of Islam's evolution across 15 centuries, from late antiquity—when it emerged as localized religion in Central Arabia—to modern era where it is practice from U.S. to Indonesia. Concentration on broad analytical categories in study of religion such as text, culture, history, and prophecy. Students transition to more complex analyses through chronological overview of Islamic history. Study also of case studies of Muslim global networks in arenas such as art, music, literature, and political thought. P/NP or letter grading.

**27CW. Global Islam: Special Topics (6)** (Formerly numbered 27CW.) (Same as Islamic Studies M27CW.) Seminar, three hours. Enforced requisite: course M27B. Introduction to Islam, immensely diverse global tradition which is second largest religion. Study of Islam and Muslims within framework of study of global religious traditions and emphasis on profound diversity of localized belief and practice found across world. Examination of Islam's evolution across 15 centuries, from late antiquity—when it emerged as localized religion in Central Arabia—to modern era where it is practice from U.S. to Indonesia. Concentration on broad analytical categories in study of religion such as text, culture, history, and prophecy. Students transition to more complex analyses through chronological overview of Islamic history. Study also of case studies of Muslim global networks in arenas such as art, music, literature, and political thought. Satisfies Writing II requirement. Letter grading.

**30A. Neverending Stories: Multidisciplinary Perspectives on Myth and Folklore (6)** Lecture, three hours; discussion, two hours. Course 30A is enforced requisite to 30B, which is enforced requisite to 30CW. Limited to first-year freshmen. Exploration in depth of particular mythological traditions, aspects of storytelling, role of myth in culture, society, and/or art, and contributions of various disciplines to study of myth. Letter grading.

**30B. Neverending Stories: Multidisciplinary Perspectives on Myth and Folklore (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 30A. Limited to first-year freshmen. Exploration in depth of particular mythological traditions, aspects of storytelling, role of myth in culture, society, and/or art, and contributions of various disciplines to study of myth. Letter grading.

**30CW. Neverending Stories: Multidisciplinary Perspectives on Myth and Folklore—Special Topics (6)** Seminar, three hours. Enforced requisite: course 30B. Limited to first-year freshmen. Topics may include myth and modern art (including literature, music, and film), myth and ritual, oral tradition and orality, myth and political ideology, myth and science, hero and trickster, and myths of creation. Satisfies Writing II requirement. Letter grading.

**40A. Chinese Classics, Their Legacy in East Asia, and Reimagination in Modern Times (6)** Lecture, three hours; discussion, two hours. Course 40A is enforced requisite to 40B, which is enforced requisite to 40CW. Limited to first-year freshmen. Learning in traditional China was defined through mastery of canon of classic texts that students memorized as part of their education. These classics were also taught in Vietnam, Japan, and Korea, and served to create cultural ties across East Asia. Many more texts came to be considered classics—works of enduring value, read by large numbers of people across centuries, including religious scriptures, legal codes, novels, paintings, and performances. Exploration of how Chinese classics have been used and reimagined in different places and times to demonstrate enduring importance of these texts and cultural artifacts. Emphasis on how these works were interpreted throughout East Asia, relationship with past, and how shared history is seen as informing present. Letter grading.

**40B. Chinese Classics, Their Legacy in East Asia, and Reimagination in Modern Times (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 40A. Limited to first-year freshmen. Learning in traditional China was defined through mastery of canon of classic texts that students memorized as part of their education. These classics were also taught in Vietnam, Japan, and Korea, and served to create cultural ties across East Asia. Many more texts came to be considered classics—works of enduring value, read by large numbers of people across centuries, including religious scriptures, legal codes, novels, paintings, and performances. Exploration of how Chinese classics have been used and reimagined in different places and times to demonstrate enduring importance of these texts and cultural artifacts. Em-

phasis on how these works were interpreted throughout East Asia, relationship with past, and how shared history is seen as informing present. Letter grading.

**40CW. Chinese Classics, Their Legacy in East Asia, and Reimagination in Modern Times—Special Topics (6)** Seminar, three hours. Enforced requisite: course 40B. Limited to first-year freshmen. In-depth examination of Chinese classic texts and their reimagination in modern times. Satisfies Writing II requirement. Letter grading.

**48A. Political Violence in Modern World: Causes, Cases, and Consequences (6)** Lecture, three hours; discussion, two hours. Course 48A is requisite to 48B, which is requisite to 48CW. Limited to first-year freshmen. Exploration of causes, dynamics, and consequences of political violence. Political violence can include anything from extra-legal warfare, ethnic cleansing and genocide, civil war, riots and pogroms, terrorism and state repression, revolution and counter-revolution, and more. Political violence is not modern phenomenon: it has been part of human experience from antiquity to present. Examination, from interdisciplinary perspective, of political violence, in particular, extreme form of political violence, genocide. Readings of theoretical and empirical works from history, comparative literature, sociology, political science, psychology, and more. Employs art, film, literature, diaries, memoirs, and news media to encourage critical thinking about political violence. P/NP or letter grading.

**48B. Political Violence in Modern World: Causes, Cases, and Consequences (6)** Lecture, three hours; discussion, two hours. Requisite: course 48B. Limited to first-year freshmen. Exploration of causes, dynamics, and consequences of political violence. Political violence can include anything from extra-legal warfare, ethnic cleansing and genocide, civil war, riots and pogroms, terrorism and state repression, revolution and counter-revolution, and more. Political violence is not modern phenomenon: it has been part of human experience from antiquity to present. Examination, from interdisciplinary perspective, of political violence, in particular, extreme form of political violence, genocide. Readings of theoretical and empirical works from history, comparative literature, sociology, political science, psychology, and more. Employs art, film, literature, diaries, memoirs, and news media to encourage critical thinking about political violence. P/NP or letter grading.

**48CW. Political Violence in Modern World: Causes, Cases, and Consequences—Special Topics (6)** Seminar, three hours. Requisite: course 48B. Limited to first-year freshmen. In-depth examination of political violence. Satisfies Writing II requirement. Letter grading.

**60A. America in Sixties: Politics, Society, and Culture, 1954 to 1974 (6)** Lecture, three hours; discussion, two hours. Course 60A is enforced requisite to 60B, which is enforced requisite to 60CW. Limited to first-year freshmen. Interdisciplinary exploration of U.S. society from Brown versus Board of Education (1954) to resignation of Nixon. Topics include civil rights, Great Society, anti-Vietnam war movement, political and artistic countercultures, and changes in technology, law, and media. P/NP or letter grading.

**60B. America in Sixties: Politics, Society, and Culture, 1954 to 1974 (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 60A. Limited to first-year freshmen. Interdisciplinary exploration of U.S. society from Brown versus Board of Education (1954) to resignation of Nixon. Topics include civil rights, Great Society, anti-Vietnam war movement, political and artistic countercultures, and changes in technology, law, and media. P/NP or letter grading.

**60CW. America in Sixties: Politics, Society, and Culture, 1954 to 1974—Special Topics (6)** Seminar, three hours. Enforced requisite: course 60B. Limited to first-year freshmen. In-depth examination of political and cultural issues affecting U.S. society from 1954 to 1974. Satisfies Writing II requirement. Letter grading.

**66A. Los Angeles: The Cluster (6)** Lecture, three hours; discussion, two hours. Course 66A is enforced requisite to 66B, which is enforced requisite to 66CW. Limited to first-year freshmen. In-depth look at city in which UCLA is located. Drawing on concept of Los Angeles as laboratory, students engage in systematic way with urban area that is to be their home for next several years. As they do, they come to understand peoples, spaces, politics, and cultures of Los Angeles and its metropolitan region in both present and past, as well as Los Angeles' place in urban world. Letter grading.

**66B. Los Angeles: The Cluster (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 66A. Limited to first-year freshmen. In-depth look at city in which UCLA is located. Drawing on concept of Los Angeles as laboratory, students engage in systematic way with urban area that is to be their home for next several years. As they do, they come to understand peoples, spaces, politics, and cultures of Los Angeles and its metropolitan region in both present and past, as well as Los Angeles' place in urban world. Letter grading.

**66CW. Los Angeles: The Cluster—Special Topics (6)** Seminar, three hours. Enforced requisite: course 66B. Limited to first-year freshmen. Topics may include musical cultures of Los Angeles, Los Angeles as global city, Los Angeles in fiction, Southern California and environment, planning for 21st-century Los Angeles, and housing and homeless in Los Angeles. Satisfies Writing II requirement. Letter grading.

**70A. Evolution of Cosmos and Life (6)** Lecture, three hours; discussion, two hours. Course 70A is enforced requisite to 70B, which is enforced requisite to 70CW or 70DW. Limited to first-year freshmen. Use of concept of evolution, as it applies to biological organisms, Earth, solar system, and universe itself, to introduce students to both life and physical sciences. Examination of evolution of universe, galaxy, solar system, and Earth. P/NP or letter grading.

**70B. Evolution of Cosmos and Life (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 70A. Limited to first-year freshmen. Use of concept of evolution, as it applies to biological organisms, Earth, solar system, and universe itself, to introduce students to both life and physical sciences. Focus on evolution of life. P/NP or letter grading.

**70CW. Evolution of Cosmos and Life: Special Topics in Life and Physical Sciences (6)** Seminar, three hours. Enforced requisite: course 70B. Limited to first-year freshmen. Not open for credit to students with credit for course 70DW. Examination in depth of various issues of evolution in cosmos from life sciences perspective. Satisfies Writing II requirement. Letter grading.

**71A. Biotechnology and Society (6)** (Same as Society and Genetics M71A.) Lecture, three hours; discussion, two hours. Course M71A is enforced requisite to M71B, which is enforced requisite to M71CW. Limited to first-year freshmen. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. P/NP or letter grading.

**71B. Biotechnology and Society (6)** (Same as Society and Genetics M71B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M71A. Limited to first-year freshmen. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. P/NP or letter grading.

**71CW. Biotechnology and Society: Special Topics (6)** (Same as Society and Genetics M71CW.) Seminar, three hours. Enforced requisite: course M71B. Limited to first-year freshmen. Topics include in-depth examination of ethics and human genetics, bioweapons and biodefense, sex and biotechnology. Satisfies Writing II requirement. Letter grading.

**72A. Sex from Biology to Gendered Society (6)** (Same as Communication M72A, Society and Genetics M72A, and Sociology M72A.) Lecture, three hours; discussion, two hours. Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72B. Sex from Biology to Gendered Society (6)** (Same as Communication M72B, Society and Genetics M72B, and Sociology M72B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M72A. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72CW. Sex from Biology to Gendered Society: Special Topics (6)** (Same as Communication M72CW, Society and Genetics M72CW, and Sociology M72CW.) Seminar, three hours. Enforced requisite: course M72B. Limited to first-year freshmen. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement. Letter grading.

**73A. Brain, Bodymind, and Society: All in Your Head? (6)** Lecture, three hours; discussion, two hours. Course 73A is enforced requisite to 73B, which is enforced requisite to 73CW. Limited to first-year freshmen. Drawing on several disciplines including disability studies, literary and film analysis, neurobiology, philosophy, and psychology, development of interdisciplinary account of how we relate our increasingly sophisticated knowledge of brain to contexts and meanings of subjectivity, mental health, and disability. Students make connections through interdisciplinary discussion of contemporary and historical understandings of brain structure and function; biological, psychological, and philosophical approaches to memory and learning; neuroscientific and philo-

sophical approaches to consciousness; literary and filmic representations of mental illness and disability; and disability and mad studies critiques of biomedical model of mental illness. P/NP or letter grading.

**73B. Brain, Bodymind, and Society: All in Your Head? (6)** Lecture, three hours; discussion, two hours. Enforced requisite: course 73A. Limited to first-year freshmen. Drawing on several disciplines including disability studies, literary and film analysis, neurobiology, philosophy, and psychology, development of multilayered account of how our increasingly sophisticated knowledge of brain relates to experiences of subjectivity, mental health, and disability. Explicitly addresses considerations regarding diversity by examining questions about variation in mental functioning and experience, with specific attention to the way ableism shapes our views about psychiatric and brain-based difference. P/NP or letter grading.

**73CW. Brain, Bodymind, and Society: All in Your Head?—Special Topics (6)** Seminar, three hours. Enforced requisite: course 73B. Limited to first-year freshmen. Topics include mental illness, neuroscience in popular culture, and neuroscience of decision making. Satisfies Writing II requirement. Letter grading.

**80A. Frontiers in Human Aging (6)** Lecture, three hours; discussion, two hours. Course 80A is enforced requisite to 80B, which is enforced requisite to 80CW. Limited to first-year freshmen. Examination of aging process from vantage points of multiple disciplines, including biology, psychology, sociology, ethics, and public policy. Study of biomedical and biological aging and psychological, social, and ethical implications of phenomena. P/NP or letter grading.

**80BX. Frontiers in Human Aging (6)** (Formerly numbered 80B.) Lecture, three hours; discussion, two hours. Enforced requisite: course 80A. Limited to first-year freshmen. Examination of aging process from vantage points of multiple disciplines, including biology, psychology, sociology, ethics, and public policy. Study of biomedical and biological aging and psychological, social, and ethical implications of phenomena. P/NP or letter grading.

**80CW. Frontiers in Human Aging—Special Topics (6)** Seminar, three hours. Enforced requisite: course 80B. Limited to first-year freshmen. In-depth examination of gender and aging, cellular aging, cancer, and aging of brain. Satisfies Writing II requirement. Letter grading.

**97A. Cluster Colloquia: Variable Topics (1)** Seminar, one hour. Variable topics course designed for students who have completed one GE cluster. Study, through small-group discussion and projects, of selected topics related to one cluster theme or topic. Consult Schedule of Classes for topics and instructors. May be repeated once for credit. P/NP grading.

## Upper Division

**180A. Cultural Heritage and Representation of Identity: Debates and Writing (5)** Lecture, three hours; discussion, two hours. Course 180A is requisite to 180B. Designed for transfer students. How tangible and intangible materials of human culture are used by their creators to fashion and refashion their identities over time and in different spaces. Introduction to multidisciplinary perspectives on human cultures and associated objects they create, different issues attendant on excavation, preservation, and presentation of these materials to different publics, and what all of this means to those whose heritage is being studied and/or exhibited through use of many rich cultural resources on and off campus. Examination of topics related to cultural heritage, with strong focus on debate and writing. Writing of weekly short essays or Op-ed pieces based on what students have learned. Letter grading.

**180B. Cultural Heritage and Representation of Identity: Special Topics (5)** Seminar, three hours. Requisite: course 180A. How tangible and intangible materials of human culture are used by their creators to fashion and refashion their identities over time and in different spaces. Introduction to multidisciplinary perspectives on human cultures and associated objects they create; different issues attendant on excavation, preservation, and presentation of these materials to different publics; and what all of this means to those whose heritage is being studied and/or exhibited through use of many rich cultural resources on and off campus. Letter grading.

# Communication

## Communication Courses

### Lower Division

**1. Principles of Oral Communication (4)** Lecture, four hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Examination of foundations of communication and public speaking. Consideration of number of basic theories related to study of communication and development of skills to enable composition and delivery of speeches in accordance with specific rhetorical concepts. Improvement of ability to analyze, organize, and critically think about communicative messages while becoming better equipped to articulate ideas. P/NP or letter grading.

**1A. Public Speaking for Nonnative Speakers (4)** Lecture, four hours. Designed for nonnative speakers of English to increase fluency and vocabulary while improving presentation skills, language usage, reasoning, style, and delivery. Conversation and pronunciation practice. Focus on theory and practice of public speaking, including selection of content, organization of ideas, language, and delivery. Practice in extemporaneous and manuscript speaking. Critical analysis of speeches in both contemporary and historical settings. Special emphasis on group discussions, evaluations, practice of both public and private speaking skills. Offered in summer only. P/NP or letter grading.

**1B. Learning American English and Culture from Movies (4)** Lecture, four hours. Advancement of students' fluency in conversational English while increasing their awareness of American popular culture. Primer on American-style colloquial English and nuances of contemporary customs and values offered through guided immersion in popular cinema. Offered in summer only. P/NP or letter grading.

**10. Introduction to Communication (5)** Lecture, four hours; discussion, one hour. Introduction to study of interpersonal and mass communication using interdisciplinary approach. Exploration of basic methods and theoretical perspectives that social scientists and others use to study interpersonal and mass communication, and basic concepts used to describe and explain that communication. Historical overview of each major mass media. Study of significant current topical issues related to means of communication that reach large numbers of people. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**72A. Sex from Biology to Gendered Society (6)** (Same as Clusters M72A, Society and Genetics M72A, and Sociology M72A.) Lecture, three hours; discussion, two hours. Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72B. Sex from Biology to Gendered Society (6)** (Same as Clusters M72B, Society and Genetics M72B, and Sociology M72B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M72A. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72CW. Sex from Biology to Gendered Society: Special Topics (6)** (Same as Clusters M72CW, Society and Genetics M72CW, and Sociology M72CW.) Seminar, three hours. Enforced requisite: course M72B. Limited to first-year freshmen. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement. Letter grading.

**88. Sophomore Seminars: Communication Studies (4)** Seminar, three hours. Limited to maximum of 20 lower-division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

### Upper Division

**100. Communication Science (4)** Lecture, three hours. Requisite: course 10 or Linguistics 1 or Sociology 1 or Psychology 10. Examination of fundamental issues in communication sciences. Exploration of theoretical and methodological approaches that bridge major areas of current interdisciplinary communication research. P/NP or letter grading.

**101. Freedom of Communication (4)** Lecture, four hours. Analysis of legal, political, and philosophical issues entailed in rights of free expression, access to audience, and access to information. Study of court decisions governing freedom of communication in U.S. P/NP or letter grading.

**102. Principles of Argumentation (4)** Lecture, four hours. Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. Critical analysis of selected argumentative speeches. P/NP or letter grading.

**105. Media Conspiracy Theories in U.S. and Middle East (4)** Lecture, three hours. Through mass and digital media, conspiracy theories are reshaping politics and society around world. Although conspiracy theories are globally widespread, they find particularly fertile ground in Middle East and in U.S. Definition, identification, and analysis of conspiracy theories as they appear in media of Western democracies and Muslim majority societies. Interdisciplinary approach to study of conspiracy theories. Case studies, such as conspiracies about 9/11, taken from Middle Eastern media sources in English translation. Background knowledge of Middle East not required. P/NP or letter grading.

**106. Reporting America (4)** Lecture, three hours. Introduction to main western European and Middle Eastern news media, with materials in English. Exploration of how U.S. is represented in Europe, Middle East, Iran, and Afghanistan, with focus on three comparative case studies of Britain, Spain, and Germany. In-depth coverage of American news as reflected in Europe and Middle East. P/NP or letter grading.

**107. Terrorism in Journalism (4)** Lecture, three hours. How do media outlets in Middle East represent Islamist terrorism? How do they describe, analyze, and comment on suicide attacks? Focus on Arab, Afghan, and Iranian media discussions of this phenomenon to explore evolution of meaning of terrorism in Muslim societies. P/NP or letter grading.

**108. Communication and Identity (4)** Lecture, three hours. Study of relationships among communication, culture, and identity, and examination of ways in which texts (broadly construed) constitute experience, difference, and subjectivity. Focus on function of language, representation and meaning in construction of self, social collectives, and world views. Consideration of how communication is performative endeavor for humans seeking to construct identity. Students are prepared to describe and explain theories that detail performance as communicative form, analyze ways language and discourse function as texts that work to produce significant personal and social identities, and describe specific principles, motivations, and theoretical categories within interdisciplinary study of culture that produce identity. Letter grading.

**109. Entrepreneurial Communication (4)** Lecture, four hours. Study of entrepreneurial communication from foundations in internal and external communication and development of data analysis, interpretation, and presentational skills utilized in existing, as well as in development of, contemporary innovative businesses. P/NP or letter grading.

**110. Gender and Communication (4)** Lecture, four hours. Understanding gender is fundamental part of understanding who we are as human beings. Exploration of crucial role of gender in spheres of life involving communication and role and origins of gender differences in communication. Contexts of

communication include family, workplace, sexuality, and intimate relationships. Discussion of how media influence conceptions of gender. P/NP or letter grading.

**111. Conflict and Communication (4)** Lecture, three hours. Analysis of when and why conflict is prevalent in daily lives (including mass media) and how communication affects reactions to and consequences of conflict. Conflict is part of our evolutionary heritage. How well we handle various conflicts affects, to great degree, our success or failure wherever we interact with others, including intimate relations, school, and workplace. P/NP or letter grading.

**113. Nonverbal Communication and Body Language (4)** (Same as Psychology M137B.) Lecture, three hours. Examination of how various forms of nonverbal communication convey meaningful information to perceivers, with focus on both production and perception of multiple communication formats (e.g., affect expression of face and body, gesture, and kinematics), with strong emphasis on body language. Readings from variety of related fields. P/NP or letter grading.

**114. Understanding Relationships (4)** Lecture, four hours. Explanation of types of communication that occur in close relationships, especially romantic relationships. In-depth coverage of variety of relationship topics, including intimacy, stages of intimate relationships, why we choose to get involved with some people as opposed to others, flirting, and self-disclosure. P/NP or letter grading.

**115. Interpersonal Dynamics (4)** Lecture, three hours. Survey of recent scientific approaches to dyadic communication and relationships. Surveys selection of experimental, observational, and quantitative methods, and how they can be applied to key issues in dyadic communication and interpersonal relationships. Topics include recent technological techniques for measuring and influencing dyads, including role of peripheral devices such as phones or other wearable devices. Consideration of dyadic processes including influence, mimicry, leadership, active listening, and more. Consideration also of how findings apply beyond dyads to teams. Letter grading.

**117. Negotiation (4)** (Same as Labor Studies M117.) Lecture, four hours. Art and science of negotiation in securing agreements between independent parties. Theory and practice that underlies successful negotiation. Experiential course in which students learn broad array of negotiation skills, including identifying one's own (and others') communication style, identifying and incorporating components of successful negotiation, and resolving conflict between parties. Letter grading.

**118. Language and Music (4)** Lecture, three hours. Cognitive science exploration of structure and evolution of language and music and their relationships to communication, cognition, and culture. P/NP or letter grading.

**119. Voice and Its Perception (4)** Lecture, four hours. Focus on how human voice conveys information about identity of speakers, physical characteristics, personality, and emotional state, and on how listeners utilize this information to make judgments about speakers. Letter grading.

**120. Group Communication (4)** Lecture, four hours. Examination of group communication from perspectives of evolutionary psychology, communications, and psycholinguistics. Topics include evolution of cooperation, ingroup and outgroup dynamics, gossip, music improvisation, and conversational behavior. P/NP or letter grading.

**121. Communication Development (4)** Lecture, three hours. Topics in childhood development of human interpersonal communication, including production and perception of communicative signals at different ages, methods for studying communication development, physiological and social mechanisms, cross-cultural similarities and differences in communication development, effects of media and technology, and disorders. Letter grading.

**122. Visual Communication (4)** Lecture, three hours; discussion, one hour. Exploration of visual basis of communication through study of social minds of infants, adults, and nonhuman primates. Letter grading.

**123. Social Cognition (4)** (Formerly numbered 123.) (Same as Psychology M137M.) Lecture, three hours. Survey of research from field of social cognition, with emphasis on understanding cognitive processes involved in interpersonal and intergroup communication. Topics include attention, interpretation, evaluation, judgment, attribution, and memory processes. Consideration of both controlled and automatic processes. Discussion of roles of motives, goals, and affective variables. P/NP or letter grading.

**124. Evolution of Language (4)** (Same as Anthropology M124R.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: Anthropology 1 or 4 or Linguistics 1. Designed for juniors and seniors. How did human capacity for language evolve? Examination of origin of human language from biological, comparative, developmental, social and computational perspectives. Topics include evolutionary theory, linguistic

structure, gesture and speech, animal communication, language learning, language disorders, and computational models of language emergence. P/NP or letter grading.

**125. Talk and Social Institutions (4)** (Same as Sociology CM125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. P/NP or letter grading.

**126. Evolution of Interpersonal Communication (4)** Lecture, four hours. Examination of current issues in interpersonal communication from perspectives of evolutionary psychology and biology. Topics include coevolution of signaler and receiver adaptations, nonverbal communication, courtship behavior, miscommunication between sexes, implied language use, and deception. Letter grading.

**127. Animal Communication (4)** (Same as Anthropology M128Q.) Lecture, three hours. Designed for Anthropology and Communication majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. P/NP or letter grading.

**130. Science of Language (4)** Lecture, three hours. Introduction to scientific foundations of psycholinguistics, and connections to applied issues in communication. Survey of various scientific methods, and how they are applied to key issues in language and communication. Discussion of how we can measure meanings of words, complexity of sentences, and study of how these are processed (and produced) during communication. Includes some hands-on exercises, including learning some scientific tools that can be used both in future research and in field. Letter grading.

**131. Computer Models of Communicators (4)** Lecture, three hours. Introduction to using computerized methods to model communication processes. Survey of various computational methods, and how to apply these in hands-on exercises. Exercises help setup small-scale simulations of communicators on personal computers. Covers computer models for individual communicators, dyads, groups, and collective (mass) systems. Letter grading.

**132. Multicultural Television (4)** Lecture, four hours. Critical evaluation of television programming and scholarly research of new developments in television. Application of research findings by students to real-world contexts in course discussions, papers, and presentations. Letter grading.

**140. Theory of Persuasive Communication (4)** Lecture, four hours. Dynamics of communication designed to influence human conduct; analysis of structure of persuasive discourse; integration of theoretical materials from relevant disciplines of humanities and social sciences. Letter grading.

**141. Films of Persuasion: Social and Political Advocacy in Mass Society (4)** Lecture, three hours; discussion, one hour. Films often provide commentary about public issues. Examination of how films communicate to large audiences about history, society, and politics. Critical evaluation of these works to understand power and limitations of films as social persuasion. Letter grading.

**143. Rhetoric of Popular Culture (4)** Lecture, three hours. Rhetorical approach to study of U.S. popular culture. Examination, both at theoretical level and through specific case studies, of ways in which popular cultural texts perform rhetorically to influence political and social struggles shaping everyday life. How do particular artifacts or communicative texts constitute source for (re)negotiation of cultural meanings as well as greater understanding of ways language functions as vehicle for human action. Letter grading.

**144A. Conversational Structures I (4)** (Same as Sociology CM124A.) Lecture, three hours; discussion, one hour. Introduction to various structures employed in organization of conversational interaction, such as turn-taking, action sequencing, and repair. P/NP or letter grading.

**144B. Conversational Structures II (4)** (Same as Sociology M124B.) Lecture, three hours; discussion, one hour. Prerequisite: course M144A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations. P/NP or letter grading.

**145. Television Sitcom and American Culture (4)** Lecture, three hours. Historical analysis of sitcom genre from its beginning in late 1940s to present. Investigation of how sitcoms have influenced American life and culture and how American life and culture have influenced sitcoms. Exploration of issues of family, race and ethnicity, class and economy, gender roles, and political culture. P/NP or letter grading.

**146. Evolution of Mass Media Images (5)** Lecture, four hours; discussion/laboratory, one hour. Analysis of evolutionary psychology as basis for images selected by media portraying women and/or minorities in entertainment, advertising, and informational communication. Letter grading.



**147. Sociology of Mass Communication (4)** (Same as Sociology M176.) Lecture, four hours; discussion, one hour (when scheduled). Studies in relationship between mass communication and social organization. Topics include history and organization of major media institutions, social forces that shape production of mass media news and entertainment, selected studies in media content, and effects of media on society. P/NP or letter grading.

**148. Marketing Communications (4)** Lecture, three hours. Examination of key concepts and methods in marketing communications in both traditional and digital media. Development and execution of communications strategies, with primary emphasis on consumer insight, branding, market segmentation and positioning, message strategy, promotion, and execution of marketing communications through appropriate media technologies. Letter grading.

**149. Media: Gender, Race, Class, and Sexuality (5)** (Same as Gender Studies M149 and Labor Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication and Gender Studies majors and Labor Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

**150. Methodologies in Communication Research (5)** Lecture, four hours; discussion, one hour. Prerequisite: Economics 41 or Statistics 10. Limited to Communication majors. Examination of quantitative and qualitative methodologies in communication research. Letter grading.

**151. Computer-Mediated Communication (4)** Lecture, four hours. Examination of how computer technology, particularly Internet, has influenced patterns of human communication. History and distinctiveness of computer-mediated communication (CMC). CMC's influence on modern economic, political, and social interaction. Letter grading.

**152. Analysis of Communication Effects (4)** Lecture, four hours. Survey of experimental and field research on effects of communications. Study of source, message, and environmental factors affecting audience response. P/NP or letter grading.

**153. Introduction to Data Science (4)** Lecture, three hours. Prerequisite: one course from Computer Science 31, 32, Program in Computing 10A, 10B with grade of C&plus; or better, or equivalent. Examination of how large-scale data can be used to systematically measure various aspects of human activities. Review of series of computational and statistical methods which enable scalable analysis and cost reduction. Students learn to interpret and understand research findings and implications from published work. Review of ethical issues in data science, such as privacy and model biases. Investigation of limitations and risks of current methods. Discussion of various ways to improve transparency and accountability of data-driven research. Letter grading.

**155. Artificial Intelligence and New Media (4)** Lecture, three hours; discussion, one hour. Prerequisite: Computer Science 31 or 32 or Program in Computing 10A or 10B with grade of C&plus; or better. Artificial intelligence (AI) and machine learning (ML) have made rapid progress in recent years on various fronts. Many of their advanced techniques are being transferred to number of domains such as business, transportation, medicine, advertisement, military operations, and social media, and aiding our decision making, planning, reasoning, and forecasting. Review of origin and modern development of artificial intelligence and its recent breakthroughs through many applications with special emphasis on its usages of media industry, e.g., personalization, recommendation, and targeted advertising. Covers its technical merits as well as controversies such as ethical and moral issues of AI, privacy concerns in data collection, and fair use of AI in general. Prior knowledge in mathematics, statistics, or computer science not required. Discussion of elementary technical details as course unfolds. Letter grading.

**156. Social Networking (4)** Lecture, three hours. Investigation of how new online social networks have facilitated interpersonal interactions for knowledge sharing, romance, business, politics, and entertainment. Critical investigation of current popular social networking websites (e.g., Facebook, Twitter, YouTube) through social network analysis and other social science research methods. P/NP or letter grading.

**157. Celebrity, Fame, and Social Media (4)** Lecture, three hours. Analysis of how following personal lives of media-created celebrities impacts self-esteem, connectedness, and personal relationships from cultural studies and social sciences perspectives, and how entities cultivate celebrity for financial

gain. Topics include celebrity gossip and privacy, news sharing, public relations, and impact of social media on fan support, image construction, and damage control. P/NP or letter grading.

**158. Python for Social Sciences (4)** Lecture, two and one half hours; discussion, one hour. Beginner-friendly inquiry into the practical applications of Python in social sciences. Ideal for processing large datasets and automating tasks, Python's versatility extends to visualization and artificial intelligence. Students learn the basics of Python coding, and focus on the essential Pandas library for data analysis. Study adopts a project-oriented approach, allowing direct application of skills in social science scenarios. Exploration additionally of use of ChatGPT to accelerate coding learning process. May be repeated once for credit. Letter grading.

**159. Artificial Intelligence and Society (4)** Lecture, three hours. Impact of artificial intelligence (AI) on society is growing rapidly. Exploration of questions of what if superhuman AI is achieved, will it free humans from tedious jobs or cause mass unemployment, and how to guarantee AI safety so that it will not annihilate human civilization. Letter grading.

**160. Political Communication (4)** Lecture, four hours; discussion, one hour. Study of nature and function of communication in political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns. Letter grading.

**163. Public Diplomacy (4)** Seminar, four hours. Exploration of field of public diplomacy and its theory and practices. How points of view and imagery in context of international politics can be influenced and changed. Development of presentation skills and understanding of structure of profession. Letter grading.

**165. Agitational Communication (4)** (Same as Labor Studies M175.) Lecture, four hours; discussion, one hour (when scheduled). Theory of agitation; agitation as force for change in existing institutions and policies in democratic society. Intensive study of selected agitational movements and technique and content of their communications. Letter grading.

**166. Inside Hollywood (4)** Lecture, four hours. Identification of how motivation and creativity interact with business interest, research, and policies in producing entertainment for media market. Letter grading.

**168. Communication and Media Law (4)** Lecture, three hours. Focus on sample of most important intersections between law and communication: copyright, trademarks, freedom of speech, privacy, secrecy, surveillance, and publicity rights. Law and communication have been intertwined since introduction of book censorship and licensing in late 16th century, and blasphemy laws before that. That relationship has grown increasingly complex in time in response to technological changes in communication media, evolution of modern state forms, and changing expectations about freedom of and responsibility for both communication and information gathering. From music piracy, knock-offs of famous brands, ubiquitous presence of closed-circuit television, facial recognition software, global tracking systems, biosensors, and data mining practices, intersection between communication, media, and law has become part of our life, on scale and to extent that would have been unthinkable few years ago. Letter grading.

**169. Critical Vision: History of Art as Social and Political Commentary (5)** (Same as Honors Collegium M179.) Seminar, three hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.

**170. Legal Communication (4)** Lecture, three hours; discussion, one hour. Review of Fifth Amendment privilege against self-incrimination, including analysis of Miranda warnings, police interrogation procedures, coerced confessions, and why innocent people confess. Examination of jury behavior, reliability of eyewitness testimony, and fair trials. Mock trial presentation. Intimate expression and right to define one's own concept of existence and meaning, using examples of evolving rulings on same-sex marriage, abortion, and right to die. Use and misuse of grand juries in police misconduct cases, including Eric Brown, Michael Garner, and Breonna Taylor cases. Questions of judicial activism, legal precedent, and standards of review. Letter grading.

**171. Theories of Freedom of Speech and Press (4)** Lecture, three hours. Exploration of relationship between freedoms of speech and press and values of liberty, self-realization, self-government, truth, dignity, respect, justice, equality, association, and community. Study of significance of these values examined in connection with issues such as obscenity, defamation, access to media, and control of commercial, corporate, and government speech. P/NP or letter grading.

**173. Affect and Emotion in Political Communication (4)** Lecture, three hours. There is growing body of work in political communication that emphasizes importance of affect, emotion, and personality in politics. Sensitivity to threat or disgust; reactions of fear, anger, or happiness; tendency to focus more on negative than on positive information—each of these can impact feelings

about candidates, and positions on wide range of domestic and foreign issues. Many of these feelings are in reaction to mass-mediated information; and changing media technologies likely increases volume of affective or emotional content reaching public. Review of recent work on these themes, drawn from both media psychology and political communication. Letter grading.

**174. Entertainment and Politics (4)** Lecture, three hours. Research in political communication often focuses on news coverage. Our ideas about world around us do not just come from news content, however—we are affected by wide range of entertainment media as well. Consideration of how changes in media technology have increasingly broken down division between news and entertainment. Review of work on impacts that entertainment-focused media—including television shows, movies, and music—have on political preferences. Letter grading.

**175. Criticism and Public Arts (4)** Lecture, four hours; discussion, one hour (when scheduled). Introduction to methods and problems of criticism in public arts. Study of several types of critical methods: formalistic, analogue, pragmatic, and aesthetic criticism. Topics include definition of art and criticism, aesthetic media, genre and resources of film, television, theater, and public discourse, varieties of critical method, problems of critical judgment. Letter grading.

**176. Visual Communication and Social Advocacy (4)** (Same as Labor Studies M176.) Lecture, four hours. Visual communication reaches diverse audiences in communicating major social and political topics. Cartoons, posters, murals, and documentary photography have had powerful world impact. Survey of all four genres of visual communications as features of modern mass media. Letter grading.

**178. Propaganda and Media (4)** Lecture, three hours. Examination of nature of propaganda, institutional structure of American media, and relationship between propaganda and American news media. History of propaganda in America from World War I era forward, competing theories of democracy and media, and role of corporations in propaganda and news. Letter grading.

**179. Images of U.S. (4)** Lecture, four hours. Awareness of international role of U.S. necessitates clear understanding of way our nation is perceived by others. Exploration of roots of U.S. images in minds of people abroad. Analysis of influences that contribute to images and ways in which images affect practical matters. P/NP or letter grading.

**182. Nonverbal Communication in Architecture (4)** Lecture, four hours. Study of how elements of design and style of various buildings in architectural history send messages to viewers and users of such buildings. Letter grading.

**184. Summer Internships (4)** Tutorial, to be arranged. Internship in supervised setting in community agency or business. Students may consult with adviser and must provide final report of their experiences. May be repeated for credit. Offered in summer only. P/NP grading.

**185. Field Studies in Communication. (2 to 4)** Lecture, two hours. Designed for juniors/seniors. Fieldwork in communication. Students participate in two-hour seminar sessions and spend seven hours in approved community settings each week for each 2 units of credit. May be taken for maximum of 4 units per term. P/NP grading.

**186. Media, Ethics, and Digital Age: Case-Study Approach (4)** Lecture, three hours. To publish or not to publish? Study addresses questions of media ethics—and ethics more broadly—using case-study method to debate pressing issues from actual newsrooms. Students participate in Socratic discussion of fairness, bias, and personal and societal implications of printed, broadcast, and digitized word. Letter grading.

**187. Ethical and Policy Issues in Institutions of Mass Communication (4)** Lecture, three hours. Intensive examination of ethical and policy issues arising from interaction of media institutions (print, film, broadcasting, and new technologies) and societal institutions (Congress, federal agencies, courts, Presidency, schools, churches, political action groups, advertisers, and audiences). P/NP or letter grading.

**188. Careers in Communication (1)** Seminar, two hours. Rigorous study of communication theories, research methods, and applications prepares students to succeed in multiple fields, including technology, entertainment, journalism, non-profit, law, education, politics/government, and management. Provides practical support and skill development that helps students transition to being professional in workplace. Consultation of successful industry professionals from variety of fields to understand how they leveraged their education to excel within their organizations. P/NP grading.

**188A. Variable Topics in Mass Communication and Media Institutions (4)** Lecture, four hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

**188B. Variable Topics in Interpersonal Communication (4)** Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

**188C. Variable Topics in Communication Technology and Digital Systems (4)** Lecture, four hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**188D. Variable Topics in Political and Legal Communication (4)** Lecture, four hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**188E. Variable Topics: Practicum (4)** Lecture, three hours. Practicum lectures on selected topics in communication. Reading, writing, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Mass Communication and Media Institutions (4)** Seminar, three hours. Research seminars on selected topics in mass communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**191B. Variable Topics Research Seminars: Interpersonal Communication (4)** Seminar, three hours. Research seminars on selected topics in interpersonal communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**191C. Variable Topics Research Seminars: Communication Technology and Digital Systems (4)** Seminar, three hours. Research seminars on selected topics in communication technology and digital systems. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**191D. Variable Topics Research Seminars: Political and Legal Communication (4)** Seminar, three hours. Research seminars on selected topics in political and legal communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**191DC. CAPP Washington, DC, Research Seminars (8)** (Same as History M191DC, Political Science M191DC, Public Affairs M191DC, and Sociology M191DC.) Seminar, three hours. Limited to CAPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC—based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**191E. Variable Topics Research Seminars: Practicum (4)** Seminar, three hours. Practicum seminars on selected topics in communication. Reading, writing, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**194. Research Group Seminars: Communication Studies (2)** Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

**195. Summer Internships (4)** Tutorial, to be arranged. Internship in supervised setting in community agency or business. Students meet with adviser and provide final reports of their experiences. May be repeated for credit. Individual contract with supervising faculty member required. Offered in summer only. P/NP grading.

**195DB. UCLA Daily Bruin and Student Media Internship (2)** Tutorial, one hour. Limited to students participating in Daily Bruin. Intended to help students get most benefit from their internship experience with UCLA student media. Students meet biweekly with instructor, provide periodic reports on their experience, and engage with industry mentors. May be taken for maximum of 12 units. P/NP grading.

**197. Individual Studies in Communication Studies. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject area required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Communication Studies (4)** Tutorial, three hours. Requisites: courses 10, 150. Limited to junior/senior majors. Development of comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in Communication Studies (4)** Tutorial, three hours. Requisite: course 198A. Limited to junior/senior majors. Continuation of work initiated in course 198A. Presentation of summary of data gathered and relevant progress to supervising faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in Communication Studies (4)** Tutorial, three hours. Requisite: course 198B. Limited to junior/senior majors. Completion of research developed in courses 198A, 198B. Presentation of honors project to supervising faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Communication Studies. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Theories in Communication Science (4)** Seminar, three hours. Exploration of theoretical and methodological approaches that bridge major areas of current interdisciplinary communication science research. S/U or letter grading.

**205. Professional Pathways (1)** Seminar, one hour. Earning PhD in any of allied social, cognitive, and computational sciences can support multiple career paths. Doctoral students are exposed to range of career pathways. Each meeting focuses on one possible career path and features guest speaker who works in that particular industry. S/U grading.

**210. Communication Speaker Series (2)** Seminar, 90 minutes. Designed for graduate students in social and natural sciences. Weekly speaker presentations in communication sciences. Focus on interdisciplinary approaches to psychological, political, and computational communication. S/U grading.

**215. Communication Research Laboratory (1)** Research group meeting, one hour. Limited to graduate students. Designed for graduate students in social and natural sciences. Discussion of current research issues and preliminary findings. Opportunities for feedback on current and proposed research activity. Assigned readings included. May be repeated for credit. S/U grading.

**220. Research Methods in Communication Science (4)** Seminar, three hours. Study of how communication science research is conducted with focus on quantitative methodology. Students gain understanding of tools used to conduct research, and experience with these tools through formulating own research ideas and projects. S/U or letter grading.

**230. Communication and Cognition (4)** Seminar, three hours. Exploration of how cognitive processes underlie multiple aspects of communication, including its evolutionary and biological underpinnings, its relevance for broad types of communication (e.g., interpersonal and mass media), and its integrative capacity across multiple areas of social science research. S/U or letter grading.

**231. Advances in Science of Interpersonal Human Communication (4)** Seminar, three hours. Examination of quantitative approaches to interpersonal communication processes. Topics include measuring human interactive be-

havior, experimentation and observational research contexts, and testing theories of human interactive behavior using computational models. S/U or letter grading.

**232. Infant Communication (4)** Seminar, three hours. Covers topics in development of interpersonal communication during infancy including neural and social mechanisms, role of culture, clinical issues, and research methodology. S/U or letter grading.

**232C. Cognitive Artificial Intelligence (4)** (Same as Statistics M232C.) Lecture, three hours. Recommended requisites: Statistics M232A, M232B. Demonstration of how to build artificial intelligence by following principles of human intelligence revealed by cognitive science, including learning from small data, expressing causality of physical world, and inferring mental states of others for intuitive social interactions. Draws from statistical modeling, cognitive science, artificial intelligence, computer vision, and robotics. S/U or letter grading.

**233. Evolution, Sex/Gender, and Communication (4)** Seminar, three hours. Sex—typically, male versus female—is fundamental social category with broad social and biological relevance. It influences our interests, preferences, social strategies, how we communicate with others. It also influences what others expect from us. Within context of this course, term gender refers to one's location on continua of femininity (female-typical) and masculinity (male-typical), including identifying as neither male- nor female-typical. Like sex, gender affects how we approach social world and how social world responds to us. Exploration of deep evolutionary foundations of sex and gender, and their modern manifestations. Topics covered may include evolutionary mismatches between ancestral past and modern present, sex/gender and mass media, navigating world of shifting gender norms, and how sex/gender influences interpersonal relationships and sexuality. S/U or letter grading.

**234. Social Vision (4)** (Same as Psychology M222G.) Seminar, three hours. Exploration of nascent field of social vision, with emphasis on how observers utilize visible cues in face and body to form impressions of other people and how these perceptions are moderated by existing knowledge structures and motivations. S/U or letter grading.

**235. Evolution of Vocal Communication (4)** Seminar, three hours. Examination of current research in evolutionary approaches to vocal communication. Topics include introduction to acoustic phonetics, animal signaling, and social communication. S/U or letter grading.

**236. Humans and Machines (4)** Seminar, three hours. Examination of communication in human-machine interactions, exploring idea that well-established psychological processes play critical roles in interactions with non-social objects. Examination of social psychology of perception across distinct sensory modalities (shape, motion, voice, touch). Study of social psychological processes between humans and non-human entities (objects, computers, robots). S/U or letter grading.

**237. Prediction and Conjecture in Communicative Behavior (4)** Seminar, three hours. Examination of range of domain-specific communicative conjectures. In advertising, conjectural dimensions of communication play central role in structuring historical development of strategies and innovations. Examination of phenomenon of resistance and introduction of concept of communicative potential. In entertainment, examination of cognitive processes of viewpoint projection, playful exploration of new forms of interaction, and investigation of development of heuristics for creatively constraining searches in infinite possibility spaces. In education, consideration of dynamics of student and instructor dialogically developing conjectural plans for guiding student cost-effectively into productive new spaces of learning. In context of television news and other forms of broadcast communication, examination of role of verbal and non-verbal signals in opening and closing conjectural discursive spaces. S/U or letter grading.

**250. Political Communication (4)** Seminar, three hours. Consideration of determinants of media content and degree to which Americans' political opinions and actions are influenced by that content. Specific topics include history of news media, recent media trends, theories of attitude formation and change, media bias, role of sources in construction of news, economics of news production and consumption, ways in which media shape public perceptions of political world, campaign communication, and general role of mass media in democratic process. S/U or letter grading.

**251. Presidential Communication (4)** Seminar, three hours. Examination of one vital source of presidency's burgeoning power: president's unmatched communication power. Study of historical evolution of president's communication environment, resources, and strategies. Exploration of how presidential campaign communication has evolved over time, and implications of this evolution for how presidents govern. S/U or letter grading.

**252. Political Parties and Strategic Partisan Communication (4)** Seminar, three hours. Examination of theories about how political parties operate in countries around world. Covers topics including normative role of parties in modern democracies, reasons why parties exist, party competition, electoral systems, variation in number and types of parties across countries, party identification, voting, and internal party dynamics. S/U or letter grading.

**253. Affective Political Communication (4)** Seminar, three hours. Consideration of role that affect plays in production and consumption of political news, and in political communication, behavior, and psychology. S/U or letter grading.

**254. Media and Politics (4)** Seminar, three hours. Mass media play a critical role in domestic and international politics, and are a central component of modern representative democracy. Review of major questions in the study of mass media and politics, in the U.S. and cross-nationally. S/U or letter grading.

**270. Computational Communication (4)** Seminar, three hours. New computational methods developed and applied for communication research along with massive datasets and computing infrastructure enable large-scale quantitative analyses on human communication and activities at scale. Introduction to state-of-art methods in computational social science and how they can apply in communication research. S/U or letter grading.

**271. Networks (4)** Seminar, three hours. Covers theory and applications from scientific study of networks. Students learn to use network analysis and visualization software and collect and analyze original network data. S/U or letter grading.

**272. Cognitive Artificial Intelligence (4)** Seminar, three hours. Study demonstrates how to build artificial intelligence by following principles of human intelligence revealed by cognitive science. These principles include learning from small data; capturing causality of physical world; inferring others' mental states for intuitive cooperation and communication. To achieve this goal, tools are drawn from cognitive science, social sciences, artificial intelligence, computer vision, and robotics. S/U or letter grading.

**273. Big Data Analysis with Machine Learning (4)** Seminar, three hours. Preparation: familiarity with coding (Python or R) and basic statistical analysis. Introduction to advanced machine learning methods that can apply to large-scale datasets in text, audio, and visual data modalities. Students learn how to develop, train, and validate machine learning models and apply methods to their own research. S/U or letter grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Limited to Communication graduate students. Directed study on variable topics in consultation with faculty member. S/U or letter grading.

**597. Preparation for PhD Qualifying Examination. (2 to 12)** Tutorial, to be arranged. Limited to Communication PhD graduate students. Reading and preparation for PhD qualifying examination. Mandatory and supplemental reading lists approved by student advisory committee. May be repeated for credit as necessary with consent of adviser. S/U grading.

**599. Research for PhD Dissertation (2 to 12)** Tutorial, to be arranged. Preparation: successful completion of qualifying examinations. Limited to Communication PhD graduate students. May be repeated for credit. S/U grading.

# Community Engagement and Social Change

## Community Engagement and Social Change Courses

### Lower Division

**10. Introduction to Engaged Scholarship (2)** Seminar, two hours. Limited to students participating in preapproved UCLA civic engagement programs. Introduction to history, research, and philosophy of general University/community partnerships, as well as specific opportunities for active engagement by undergraduate students at UCLA. Offered in summer only. P/NP grading.

**18. Bruin Leaders: Model for Social Change (1)** Lecture, two hours; fieldwork, one hour. Introduction to leadership development and civic engagement through community service. Based on nonhierarchical mode of leadership developed by UCLA Graduate School of Education and Information Studies. Topics include diversity issues, organizational skills and team-building development, and personal growth and community service goals. Participation in first-week orientation session required. Consult Schedule of Classes for topics to be offered in specific term. May not be repeated for credit. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**50XP. Engaging Los Angeles (5)** (Formerly numbered 50SL.) Lecture, two hours; discussion, two hours. Community-engaged learning course with focus on diverse communities of Los Angeles. Analysis of general shared history of Los Angeles. Comparing or contrasting of experiences of several different racial/ethnic groups. Engagement in meaningful work off campus to reflect on assets, injustices, and inequities that have shaped experiences of native or immigrant communities. Analysis of Los Angeles in which residents coexist and interact while managing tensions and social justice issues inherent in minority/majority city. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**95A. Introduction to Community-Based Internships (2)** Tutorial, one hour; fieldwork, four hours. Course 95A is not requisite to 95B. Introduction to community-based work for students in specialized UCLA scholarship programs. Platform for preplanned, organized, structured, and supervised off-campus experiences with academic context. Acceptable placements include corporate, nonprofit, and governmental organizations that meet criteria for undergraduate internships as established by Center for Community Engagement. Individual contract with supervising faculty member required. P/NP or letter grading.

**95B. Introduction to Community-Based Internships (4)** Tutorial, one hour; fieldwork, 10 hours. Course 95A is not requisite to 95B. Introduction to community-based work for students in specialized UCLA scholarship programs. Platform for preplanned, organized, structured, and supervised off-campus experiences with academic context. Acceptable placements include corporate, nonprofit, and governmental organizations that meet criteria for undergraduate internships as established by Center for Community Engagement. Individual contract with supervising faculty member required. P/NP or letter grading.

**95CE. Introduction to Community-Based Internships (2)** Tutorial, one hour; fieldwork, four hours. Introduction to community-based work for third-term freshman/sophomore students who have not completed 90 units. Platform for preplanned, organized, structured, and supervised off-campus experiences with academic context. Acceptable placements include corporate, nonprofit, and governmental organizations that meet criteria for undergraduate intern-

ships as established by Center for Community Engagement. May be repeated once for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**98A. Leadership and Social Change (2)** Seminar, two hours. Exploration of different modes of leadership and consideration of how effective leadership can bring about positive social change. We live in period of extraordinary opportunity and challenge—in which breathtaking technological advances sit alongside breathtaking cynicism and corruption. Examination of how effective and inspiring leaders can lead in such environment, if it is possible to make difference and effect change in face of deep structural inequality, criteria that make effective leader, and if each of us bears within ourselves leadership potential. Exploration of past models of successful leadership and different models of present-day leadership, drawing on inspiring examples from social activism, politics, religion, law, philanthropy, and education. Students are encouraged to formulate their own models of leadership. Three to four day experiential learning opportunity in leadership development off campus. P/NP grading.

**98B. Organizational Analysis and Workforce Readiness (2)** Seminar, two hours. Requisite: course 98A. Analytic training on how to study institutions and organizations. Students identify, contact, and interview practitioner from work area of interest. Site visits to various working environments in Los Angeles area. Analytics training on how to study institutions and organizations and prepare research briefs on organizations/institutions to be visited. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100XP. Perspectives on Civic Engagement for Social Justice (5)** (Formerly numbered 100SL.) Seminar, three hours. Community-based learning course. Examination of theories and concepts of civic engagement as means to achieve social justice. Exploration of what informs and influences student theories of change. Reflection on these concepts through work in collaboration with select community-based organizations dedicated to changing status quo with regard to power and opportunity in Los Angeles. Letter grading.

**101. Arts Initiative Seminar (4)** Seminar, 90 minutes; discussion, one hour. Introduction to research in with an eye to social justice, racial equity, and excellence. Students are encouraged to use their personal, family, and community knowledge and expertise to inform their research questions, methodologies, and outcome. Students are introduced to research discourse and empowered to use this experience for their future professional goals. Study develops a creative and independent ethos and approach to academic research in the arts and humanities. P/NP grading.

**102. Reflections on Alternative Spring Break (2)** Seminar, two hours. Limited to students who have participated in USAC Community Service Commission Alternative Spring Break immediately prior to Spring Quarter. Discussion of role of higher education initiatives in civic identity formation, with specific attention to reflection on Alternative Spring Break experiences. P/NP or letter grading.

**103XP. Carter Huggins Community Development and Social Justice Seminar (4)** Seminar, one hour; discussion, 90 minutes; community-engaged work, four to six hours. The Carter Huggins Community Development and Social Justice Scholars Program (CDSJ) provides undergraduate students with an opportunity to integrate classroom and community service experiences in preparation for graduate study in social welfare, public policy, labor/workplace studies, urban planning, and public health. Through weekly cohort meetings, classroom activities, one-on-one meetings with a graduate mentor, and community-based learning experiences, CDSJ serves to create a learning environment that includes reflection, personal and academic development, and community building in a cohort setting. Letter grading.

**104. Educators for Tomorrow Cohort Seminar (4)** Seminar, one hour; discussion, 90 minutes. Students are exposed to the second and third phases of the research process. Through varied course readings, testimonies, guest speakers, and interactive assignments, students individually and collectively discuss, explore, and learn best practices for data collection, data analysis, data interpretation, and writing up data. Students present their preliminary findings at UCLA Undergraduate Research Week. Alongside working on independent empirical research projects, students are walked through the graduate school application process and graduate school search. Study is designed to challenge students and make them think critically about their role as

a present and future education leader. Students' own educational experiences, professional work, and research project aid them in becoming better acquainted with the wide-ranging issues plaguing the current K-16 education system, and empowers them to be a social justice educator. Letter grading.

**105XP. Client-Based Program Evaluation and Research (4)** (Formerly numbered 105SL.) Seminar, three hours; fieldwork, 10 hours. Limited to juniors/seniors. Service learning course for undergraduate students and community partners through which students learn theory and practice of program evaluation. Evaluation of nonprofit organizations in Los Angeles by research teams. Offered in summer only. Letter grading.

**106. UndocuBruins Cohort Seminar (4)** Seminar, one hour; discussion, 90 minutes. Students are introduced to research in their discipline with an eye to social justice, racial equity, and excellence. Students are encouraged to use their personal, family, and community knowledge and expertise to inform their research questions, methodologies, and outcomes. Students are introduced to research discourse, and empowered to use this experience for their future professional goals. Letter grading.

**107. Counseling Multicultural Communities (2)** Seminar, six hours. Prospective AAP peer counselors are equipped to understand unique challenges that students from historically underrepresented communities may face during their transition to UCLA. Participants also gain deeper understanding of cultural capital with which those students enter UCLA while reflecting on their own experiences. Participants define their roles as UCLA peer counselors, and reflect on how students' cultural backgrounds and educational experiences empower them to achieve academic and personal development. P/NP grading.

**108XP. Introduction to Early Childhood Education: Civic Engagement Perspectives (4)** (Formerly numbered 108SL.) Lecture, three hours; fieldwork, eight hours. Limited to students who are participating members of Jumpstart AmeriCorps literacy program. Service learning course on early childhood development and civic engagement. Overview of child development theory as well as examination of policies and systems that impact practice of preschool education. Discussion about history and future of civic engagement movement designed to engage diverse groups of committed stakeholders in reaching common goal. P/NP or letter grading.

**110XP. Community-Based Studies of Popular Literature (5)** (Formerly numbered M110SL.) (Same as English M115XP.) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, two hours. Enforced prerequisite: English Composition 3. Service learning course that examines history and development of one or more genres of popular literature, with attention to contemporary communities of readers and writers and formation of civil society. Topics vary and may include children's literature and childhood literacy, mass market fiction and book club culture, or science fiction and science policy. Service-learning component includes meaningful work with local nonprofit organizations selected in advance by instructor. May be repeated for credit with topic change. P/NP or letter grading.

**115. Citizenship and Public Service (4)** (Same as Political Science M115C.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended prerequisite: Political Science 10. Designed for juniors/seniors. Study of ways in which political thinkers have conceived of ideas of citizenship and public service, how these ideas have changed over time, and frameworks for thinking about citizenship in era of markets and globalization. P/NP or letter grading.

**121. Race, Gender, and Data (4)** (Same as Digital Humanities M121.) Seminar, three hours. Requisite: Digital Humanities 101. Data plays a crucial role in political representation, governmental resource allocation, and policy decisions. Investigation of how data does or does not ascribe a quantitative value to a human life by employing a community-engaged emphasis to study how emerging digital models link data with social justice organizing. Students learn to read datasets produced by governmental entities such as the U.S. Census Bureau, Bureau of Labor Statistics, and Department of Health and Human Services. Assignments include working on a community-engaged data project that evaluates and addresses key concerns facing communities-of-color. Introduction to critical data studies and applied data ethics. Studio sessions include lessons on finding and analyzing datasets relevant to racial and gender justice themes; and to generating data visualizations, digital stories, and maps using the latest software tools. No prior knowledge of statistics or quantitative analysis is required. P/NP or letter grading.

**122XP. Philanthropy as Civic Engagement (5)** (Formerly numbered M122.) (Same as Honors Collegium M123XP.) Seminar, three hours. Limited to juniors/seniors; application required. Study of history, philosophy, and practice of philanthropy. Practical experience in setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations. Letter grading.

**130. Intercultural Communication in Global Workplace (4)** Seminar, three hours. Students enrolled in international summer internships draw on their own and each other's experiences to critically think about intercultural communication, and to draw insights from that academic literature to define and build intercultural communication competencies in context of workplace environment. P/NP or letter grading.

**133XP. Topics in Community-Engaged Research: Theory and Practice (4)** (Formerly numbered 133SL.) Seminar, three hours; fieldwork, two hours. Service learning course that examines variable topics related to theory and practice of community-based research. Service learning component includes meaningful work with community partners selected in advance by instructor and Center for Community Learning. May be repeated for credit with topic or instructor change. Letter grading.

**134XP. Engaging Immigrants and Their Families (5)** (Formerly numbered M134SL.) (Same as Chicana/o and Central American Studies M134XP and Labor Studies M134XP.) Lecture, two hours; discussion, two hours; field placement, two hours. Survey and exploration of immigrant landscape in Los Angeles—truly global city acting in part to buffer, settle, and incorporate immigrants in daily life. Focus on civil society to explore multiple forms of interventions and impacts that take place in multiple communities across Los Angeles basin. Service learning partnerships focus on organizations addressing immigration concerns. Letter grading.

**145. Conflict, Power, Inequality, and Change (4)** Lecture, four hours. Broad historic trend of systems in conflict since beginnings of colonialism, including capitalism, urbanism, liberalism, and neoliberalism. Examination of modalities and theories of conflict and transformation, with emphasis on three primary forms of societal conflict: social movements, war, and terrorism. Study of resource scarcity through two specific dimensions: how it is leveraged to meet political ends, and how it can be harnessed for conflict intervention, resolution, transformation, and prevention. P/NP or letter grading.

**147. Critical Analysis of Strategies toward Environmental Justice (4)** (Same as Environment M147.) Lecture, three hours. Exploration of and engagement in critical analyses of strategies toward environmental justice including environmental education, civic ecology, environmental stewardship, policy advocacy campaigns, citizen science, community engagement, community planning, and urban tree canopy. Strategies are interwoven across four interconnected modules: community exposure to harm; access to ecosystem benefits and services; lack of diversity and engagement; and utilization of social-ecological systems approach. Students conduct case study analysis of strategies employed in efforts to move toward environmental justice, and develop collective course resource on environmental justice strategies. P/NP or letter grading.

**150. Social Innovation Theory and Application (4)** Seminar, three hours. Limited to students in UCLA Summer Social Innovation Research Program. Study of social innovation as theory of civic engagement, with particular emphasis on how social innovators have transformed way we address entrenched social issues. Study of elements of existing social innovation models and strategies for employing methods of social change on campus and in communities. Offered in summer only. Letter grading.

**151. Documentary Film Making as Strategy for Social Change (4)** Lecture, two hours; discussion, two hours. Survey of selection of documentary films diverse in genre (advocacy, observational, essayistic, ego document, archival) and subject (war, exploitation, incarceration, ecosystem collapse, revolution, genocide). Discussion of films in their historical and artistic context, and in way they are vehicles for community engagements and social change. P/NP or letter grading.

**152. Exploring Social Change: Critical Analysis through Lens of Community Organizing and Social Movements (4)** Lecture, four hours. Exploration of theories driving social change and how visions and agendas get organized toward common efforts. Analysis of organizing frameworks through specific movements for social, economic, and political change. Introduction to praxis, defined by Paulo Freire in *Pedagogy of the Oppressed* as "reflection and action directed at the structures to be transformed." P/NP or letter grading.

**163SL. Civic Engagement and Public Use of Knowledge: Special Topics (5)** Seminar, three hours; fieldwork, three hours. Limited to juniors/seniors. Service learning course that examines variable topics related to University/community partnerships and role of civic education in higher education. May be repeated for credit with topic or instructor change. Letter grading.

**165XP. Storytelling for Social Justice: Research and Writing with Nonprofit Organizations (5)** (Formerly numbered 165SL.) Seminar, three hours; fieldwork, two hours. Limited to juniors/seniors. Exploration of how nonprofit organizations use storytelling strategies to advance social justice. Offers opportunity to use research and writing skills telling stories of social justice through print and online media. Students collaborate with nonprofit organizations to com-

plete research and communication projects. Special focus on how storytelling can empower individuals and communities and advance equity in diverse urban centers like Los Angeles. Letter grading.

**170XP. Food Studies and Food Justice in Los Angeles (4)** (Formerly numbered M170SL.) (Same as Food Studies M170XP.) Seminar, three hours; fieldwork, two hours. Interdisciplinary service learning course that provides general understanding of access and equity issues related to food chain in Los Angeles. Exploration of social justice issues faced by residents of lower-income communities. Reading of research from multiple disciplines, including but not limited to public health, environmental justice, and public policy. Service-learning component includes meaningful work with off-campus community partners selected in advance by instructor and Center for Community Learning. Letter grading.

**172XP. Community-Engaged Research to Address Health Disparities (4)** Lecture, three hours; fieldwork, three hours. Examination of use of community-engaged research to understand and address health disparities in minority communities. Focus on chronic disease disparities: inequities in risk and outcomes from conditions such as hypertension, diabetes, obesity, heart disease, chronic pulmonary diseases, autoimmune disorders, and HIV. Examination also of role these conditions play in COVID-19 risk and disparities, and role that community-engaged strategies can play in preventing or reducing health disparities. Includes case studies, discussions with community partners and researchers, and assignments to explore impact of community engagement on chronic disease disparities and to mitigate inequitable impact of COVID-19. Student teams partner with community organizations and develop partnered project, with deliverable to community partner due at end of course. P/NP or letter grading.

**175SL. Addressing Social Determinants in Racial/Ethnic Minority Communities to Reduce and Prevent Health Disparities (4)** (Same as Psychology M176SL.) Seminar, two hours; fieldwork, 10 hours. Examination of how addressing social determinants in racial/ethnic minority communities can reduce or eliminate physical and mental health disparities. Currently in racial and ethnic minority communities, health status of individuals can be function of built environment, exposure to pollutants and toxins, scarcity of supermarkets or stores with fresh produce and nutritional food, noise levels, and variety of other stressors and unhealthy conditions. Health interventions are often focused on individual-level change or increases in access to healthcare with little in way of changing risk environments. Designed to identify and provide opportunities to understand how to address social determinants related to negative health outcomes in racial/ethnic minority neighborhoods and communities and to experience how to use social determinants literature in service of collaborative activities with community organizations. P/NP or letter grading.

**176XP. Making Films about Food (5)** (Formerly numbered M176SL.) (Same as Food Studies M176XP and Public Affairs M176XP.) Lecture, three hours. Introduction to documentary video production and distribution. Students work on assignments in pairs and small groups to create 8- to 10-minute video about one of several Los Angeles partner organizations that advocate for healthy, local, sustainable food. Consideration, through video production, of challenges posed by existing farming, ranching, and distribution methods, and strategies these groups are pursuing to create more sustainable food pathways. Students look at social media communication strategies to help think through intervention in face of historically entrenched industrial food production and regulations that remain favorable to mass-produced, processed food items. P/NP or letter grading.

**180. Access to Justice: Hope and Reality (4)** Seminar, three hours. Limited to UCLA students who are members of JusticeCorps program through AmeriCorps. JusticeCorps was established as innovative approach to solving one pressing issue faced by courts around country today: providing equal access to justice. Examination of promise of justice system in America to provide meaningful access to courts for all who seek it. What premises underlie structure of U.S. legal system? Exploration of sociopolitical context for current legal system, including origins and current status of legal services and self-help movements, including role of JusticeCorps. Were these strategies designed to make promise of equal justice a reality or have they inadvertently, or intentionally, resulted in two-tiered legal system—one for those with means and another for those without? P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188XP. Practicum in Social Entrepreneurship (4)** (Formerly numbered M188.) (Same as Economics M188XP.) Seminar, three hours. Enrollment by consent of instructor. Offers students full-scale immersion into challenges of launching social enterprise. Students work in teams alongside staff of local nonprofit organizations in 10-week social enterprise accelerator program aimed at helping participating organizations secure financial and operational resources they need to implement social enterprise for which viable business plan has already been constructed. Students meet assigned organization, study its business plan, and work with instructors of course and staff of nonprofit organization to develop tailored plan of work for 10-week accelerator program. Students carry out work in conjunction with staff of organization under supervision of instructors and with assistance of experienced entrepreneur volunteer mentors. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190A. Introduction to Community-Engaged Research (4)** (Same as Labor Studies M190A.) Seminar, three hours. Enrollment by consent of instructor. Designed for students participating in Astin Community Scholars Program. Introduction of principles of community-engaged research. Exploration of intentions behind doing research with community residents and organizations, our responsibilities when conducting research in historically disenfranchised communities, and relationship between socially-just research outcomes and methodologies. P/NP or letter grading.

**190B. Community Engaged Research in Practice: Community Scholars (4)** (Same as Labor Studies M190B.) Seminar, three hours. Requisite: course M190A. Enrollment by consent of instructor. Designed for students participating in Astin Community Scholars Program. Students learn from faculty, community stakeholders, graduate students, and key academic experts about emerging organizing models, best practices, and changing landscape in chosen topic. Provides students with opportunity to work with leaders from key community and labor organizations across Los Angeles on six-month dynamic participatory research project. Focus on current topic affecting Angelenos and neighboring communities. Key outcomes may include production

of policy reports, popular education materials, and/or book publication by UCLA Labor Center and collaborative partners. Primary focus on engaging policy makers and other change agents. P/NP or letter grading.

**190C. Community Engaged Research in Practice: Community Scholars (4)** (Same as Labor Studies M190C.) Seminar, three hours. Requisites: courses M190A, M190B. Enrollment by consent of instructor. Designed for students participating in Astin Community Scholars Program. Students learn from faculty, community stakeholders, graduate students, and key academic experts about emerging organizing models, best practices, and changing landscape in chosen topic. Provides students with opportunity to work with leaders from key community and labor organizations across Los Angeles on six-month dynamic participatory research project. Focus on current topic affecting Angelenos and neighboring communities. Key outcomes may include production of policy reports, popular education materials, and/or book publication by UCLA Labor Center and collaborative partners. Primary focus on engaging policy makers and other change agents. P/NP or letter grading.

**191AX. Capstone Research Seminar (4)** (Formerly numbered 191A.) Seminar, three hours. Provides students with analytical and applied framework for process of researching historical and contemporary social issues and efforts to bring about change in local communities. Letter grading.

**191BX. Capstone Research Seminar: Projects (4)** (Formerly numbered 191B.) Seminar, three hours. Provides students with analytical and applied framework for process of researching historical and contemporary social issues and efforts to bring about change in local communities. Culminates in capstone research project, typically length required of publishable journal articles (15-25 pages). Students' research should be implementation of design completed in course 191A, and should be informed by their coursework in the minor. Letter grading.

**195CE. Community and Corporate Internships in Community Engagement and Social Change (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Engagement. Individual contract with supervising faculty member required. P/NP or letter grading.

**195DC. Quarter in Washington, DC, Internships (4)** (Same as History M195DC, Political Science M195DC, Public Affairs M195DC, and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior Quarter in Washington program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP or letter grading.

**198. Honors Research in Civic Engagement (4)** Tutorial, one hour. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Civic Engagement (4)** Tutorial, to be arranged. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated once for credit. Individual contract required. Letter grading.



# Community Health Sciences

## Community Health Sciences Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Public Health Perspectives on Sexual and Reproductive Health (5)** Lecture, four hours; discussion, one hour. Not open for credit to students with credit for course 151. Medically accurate, fact-based course on sexuality, reproduction, and human relationships. Exploration of all topics from a comprehensive and inclusive public health perspective. Topics include history of sex education, human development, relationships, personal skills, sexual behavior, sexual health, reproductive health, and sexual violence. P/NP or letter grading.

**48. Nutrition and Food Studies: Principles and Practice (5)** Lecture, three hours; discussion, one hour. Overview of nutritional sciences and public health nutrition. Examination of basic science concepts of nutrition and application of them to student lives and real-world issues through lectures, videos, diet analysis, activities, reports, discussion of video and reading assignments, and reviews of community programs that apply nutrition and behavior theory to improve health of public. Students use observational research methods to create and answer questions about nutrition question in their cohort. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Introduction to Community Health Sciences (4)** Lecture, four hours. Limited to junior/senior nonmajors and graduate students, with preference given to undergraduates in Public Health minor. Not open for credit to students with credit for course 120. Introductory course to provide students with broad and comprehensive overview of concepts, empirical research, and public health practice in community health sciences, with emphasis on social context and determinants of population health, and principles of planning interventions to protect and improve public health. Includes ways to define and measure health and illness, social construction of illness, social and behavioral determinants of health, and health disparities. Discussion also of social and behavioral theories of health-related behavior change, health promotion strategies and methods, advocacy, and public policy. Letter grading.

**120. Promoting Healthy Communities (5)** Lecture, four hours; discussion, one hour. Prerequisite: Public Health 50B. Limited to Public Health majors. Not open for credit to students with credit for course 100. Comprehensive overview of concepts, empirical research, and public health practice in community health sciences, with emphasis on social context and determinants of population health and principles of planning interventions to protect and improve public health. Ways to define and measure health and illness, social construction of illness, social and behavioral determinants of health, and health disparities, including socioeconomic status, race/ethnicity, gender, and age. Social and behavioral theories of health-related behavior change, health promotion strategies and methods, and public policy. Case studies of evidence-based health promotion programs provided. Letter grading.

**130. Nutrition and Health (4)** Lecture, three hours; laboratory, one hour. Preparation: one biology course, one chemistry course. Basic and clinical nutrition theory and practice for students in health sciences curricula. P/NP or letter grading.

**131. Healthy Food Access in Los Angeles: History and Practice of Urban Agriculture (4)** Lecture, three hours; laboratory, 90 minutes. History and recent revival of urban agriculture (gardening) in Los Angeles area. Exploration of how urban gardening is response to crises such as U.S. obesity epidemic and resulting health problems. Critiques of industrial agriculture in California and elsewhere in U.S. Exploration of how urban agriculture springs from healthy food/active living and consumer movements that advocate access to locally grown, in-season, affordable food. Biweekly hands-on gardening laboratory in Sunset Canyon Recreation Center Organic Garden. P/NP or letter grading.

**132. Health, Disease, and Health Services in Latin America (4)** Lecture, four hours. Introduction to health, disease, and health services in Latin America, with emphasis on epidemiology, health administration, medical anthropology, and nutrition. P/NP or letter grading.

**140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4)** (Same as Asian American Studies M129.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders; identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading.

**151. Public Health Approaches to Sexual and Reproductive Health (4)** Lecture, four hours. Not open for credit to students with credit for course 20. Exploration of sexual and reproductive health challenges and well-being from a comprehensive and inclusive public health perspective. Topics include sex education; human development and reproduction; sexual behavior, health, and dysfunction; relationships; and sexual violence. Discussion of multilevel interventions based on social, cultural, and biological influences. P/NP or letter grading.

**160. Health Communication in Public Health (4)** Lecture, three hours. Exploration of foundational principles and practices of health communication. Examination of theories, models, and strategies used in the field of health communication to promote health, prevent disease, and facilitate behavior change. P/NP or letter grading.

**CM170. Improving Worker Health: Social Movements, Policy Debates, and Public Health (4)** (Same as Labor Studies M170.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. Concurrently scheduled with course CM470. P/NP or letter grading.

**179. Life Skills for College Students (4)** Seminar, four hours. Multidisciplinary exploration of student development in undergraduate experience, with focus on processes of identity formation and emotional and social development. Emphasis on variability associated with gender, race, ethnicity, culture, and sexual orientation. Testing of real-life relevance of theory and research. P/NP or letter grading.

**187A. Introduction to Interventions for At-Risk Populations (4)** Lecture, three hours; committee meetings/community service, two to six hours. Course 187A is requisite to 187B. Designed for juniors/seniors. Health and social needs/services from primarily public health perspective, drawing on related academic/professional disciplines. Community-based service learning strategy used to enhance knowledge of concepts covered. As part of service portion, students trained as caseworkers and committee members. Letter grading.

**187B. Introduction to Interventions for At-Risk Populations (4)** Lecture, three hours; committee meetings/community service, two to six hours. Requisite: course 187A. Designed for juniors/seniors. Health and social needs/services from primarily public health perspective, drawing on related academic/professional disciplines. Community-based service learning strategy used to enhance knowledge of concepts covered. As part of service portion, students trained as caseworkers and committee members. Letter grading.

**188A. Special Courses in Community Health Sciences (4)** Lecture, three hours. Examination of current topics or particular subfields or experimental or temporary courses in community health sciences. Specific topic areas vary with instructor. May be repeated for credit with topic change. P/NP or letter grading.

**188B. Special Courses in Community Health Sciences (2)** Lecture, two hours. Examination of current topics or particular subfields or experimental or temporary courses in community health sciences. Specific topic areas vary with instructor. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**200. Global Health Problems (4)** Lecture, two hours; discussion, two hours. Overview of health profile of world in 20th century. Global health problems and methods by which they have been dealt in context of Alma Ata goal of health for all by year 2000. Letter grading.

**205. Immigrant Health (4)** Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of key topics in public health for documented and undocumented immigrants and refugees in U.S. Demographics, health status, behavioral risk factors, and social determinants, health and human rights, and access to healthcare and prevention services. Analysis of public policy across topics. Builds skills necessary to develop integrated approach to health of immigrant populations. Letter grading.

**208. Introduction to Demographic Methods (4)** (Same as Biostatistics M208, Economics M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

**209. Population Models and Dynamics (4)** (Same as Sociology M213C.) Lecture, three hours. Requisite: course M208. Population models and their dynamics in population processes. How demographic models are used in estimation of population size, age structure, and associated dynamics. Computer simulations of demographic processes to gauge conclusions from demographic models. Estimation of demographic models in human population and broader relevance of demographic analysis to study of any population or system, including health and social systems. S/U or letter grading.

**210. Community Health Sciences (4)** Lecture, three hours; discussion, one hour. Preparation: one social sciences course. Basic concepts, relationships, and policy issues in field of community health, variability in definitions of health and illness, correlates of health and illness behavior, impact of social and community structure on health status, major contemporary approaches to health promotion and health education at community level. Use of comparative international perspective. Letter grading.

**211A. Program Planning, Research, and Evaluation in Community Health Sciences (4)** Lecture, three hours; discussion, one hour; outside assignments, eight hours. Requisite: course 210. Course 211A is requisite to 211B. Development, planning, and administration of public health programs in community settings. Introduction to range of research methods and techniques used in designing and conducting health research, with particular emphasis on evaluation of community-based public health programs. Course organized into three modules. Letter grading.

**211B. Program Planning, Research, and Evaluation in Community Health Sciences (4)** Lecture, three hours; discussion, one hour; outside assignments, eight hours. Requisites: courses 210, 211A, and Biostatistics 100B or Epidemiology 100 or Public Health 200A and 200B. Development, planning, and administration of public health programs in community settings. Introduction to range of research methods and techniques used in designing and conducting health research, with particular emphasis on evaluation of community-based public health programs. Course organized into three modules. Letter grading.

**212. Advanced Social Research Methods in Health (4)** Lecture, four hours; laboratory, two hours; outside assignments, eight hours. Requisites: courses 211A, 211B, Biostatistics 100B, 406. Problems of health survey design and data collection; measurement issues in data analysis and interpretation; use of computer for analysis of large-scale survey data using various statistical techniques. Letter grading.

**213. Research in Community and Patient Health Education (4)** Lecture, three hours; discussion, two hours. Requisite: course 210. Application of conceptual, theoretical, and evaluation skills to community-based health education

risk-reduction programs. Computer applications, data management, and research methodologies taught through microcomputer and mainframe computer management and analysis of program databases. Letter grading.

**214. Issues in Program Evaluation (4)** Discussion, three hours; reading and research paper, one hour. Requisite: course 212. Advanced seminar that explores problems of planning and implementing evaluation research in context of local demonstration projects. Letter grading.

**216A. Qualitative Research: Design and Data Collection (4)** (Formerly numbered M216.) (Same as Anthropology M285A.) Seminar, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to health care. Letter grading.

**216B. Qualitative Research: Analysis and Dissemination (4)** (Same as Anthropology M285B.) Lecture, three hours. Hands-on approach to qualitative data analysis. Students learn how to conduct all steps of thematic analysis, including developing codes and coding schemes, analytic techniques to compare and categorize data, assessing validity and quality of data, as well as summarizing and presenting qualitative findings. Lectures, discussion of readings, and practical exercises by hand and with Dedoose computer software. S/U or letter grading.

**217. Current Issues in Food Studies (4)** (Same as Urban Planning M216.) Seminar, three hours. Limited to Food Studies Graduate Certificate Program students. Food is complex subject given that production, procurement, preparation, consumption, and exchange of edible matter is biologically vital to human growth, development, and function and critical to many aspects of society and culture. Food studies is growing cross-disciplinary field of research, teaching, and advocacy that encompasses and draws from cultural anthropology and geography, food law and policy, urban planning, sociology, literature, history, public health, nutrition, environmental science, molecular and cell biology, science and technology studies (STS), agronomy, and other disciplines. Survey of some of these wide-ranging topics and disciplines that define food studies. Letter grading.

**218. Questionnaire Design and Administration (4)** (Same as Epidemiology M218.) Lecture, four hours. Requisites: courses 211A and 211B, or Epidemiology 200B and 200C. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

**219. Theory-Based Data Analysis (4)** Seminar, three hours. Enforced requisites: courses 270A, 270B, Biostatistics 100B, 406, Public Health 200A, 200B, or permission of instructor. Limited to Community Health Sciences PhD students. Translation of theory into data analytic plan, its application to real data, and interpretation of results obtained through multivariate analysis. Analysis of quantitative data using range of multivariate techniques, such as linear multiple regression and logistic regression. Analysis of theoretical problem using student quantitative data or public use data. Letter grading.

**220. Racism and Public Health: Social Epidemiologic Approaches (4)** Seminar, two hours; discussion, one hour. Requisite: Biostatistics 100B. Integration of social epidemiologic methods and critical approaches to study of racial stratification and public health, with focus on (1) conceptualizing racism-related factors as social determinants of health, (2) building methodological competence for conducting research on racism as social determinant of health, and (3) developing critical self-consciousness to better understand how persons' racial- or racism-related perspectives and experiences might inform their research. Letter grading.

**221. African American Health across Life (4)** Seminar, two hours. Requisite: course 210. Critical examination of social, psychological, and biological pathways to health and longevity among African Americans through engagement with empirical research from multiple disciplines (public health, sociology, psychology, medicine). Guided by social stress theory and other theoretical perspectives, consideration of health impact of historical and contemporary racial inequality. Application of this critical lens to examine current events and propose potential public health solutions and avenues for intervention. Study of African American health is often characterized by deficit approach, which defines well-being of this population only in terms of their health risks relative to majority. Discussion of risk factors associated with adverse health outcomes, but also identification of numerous resources used by African Americans to promote resilience and preserve health. Letter grading.

**222. Understanding Fertility: Theories and Methods (4)** (Same as Sociology M206.) Lecture, three hours. Preparation: one formal or social demography course. Requisite: Biostatistics 100A. Application of demographic theories and methods to describe fertility trends and differentials and social and proximate determinants of fertility, with emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, and social demography. Letter grading.

**224. Social Determinants of Nutrition and Health (4)** Lecture, three hours. Preparation: one basic nutrition course. Health promotion strategies aimed at reducing chronic disease risk through lifestyle changes have not been particularly successful in addressing needs of socioeconomically disadvantaged groups. Overview of literature supporting relationship between socioeconomic disadvantage and food-related health conditions such as obesity, diabetes, and osteoporosis. Critical examination of plausible pathways from perspectives of multidisciplinary (economics, nutrition, sociology, and more), with focus on linkages between social and physical environment (including built environment) and food equity/access; discussion of how food may be catalyst for improving social capital and health. Discussion of examples of local and international efforts to improve access to healthy foods and/or limit access to unhealthy foods. Exploration of methods for assessing social capital and food-related aspects of neighborhood environments. S/U or letter grading.

**225. Writing for Publication in Public Health (4)** Seminar, four hours. Requirements: course 219, two graduate biostatistics courses, one graduate epidemiology course. Development of skills for advanced doctoral students in producing peer-review-quality research papers, with focus on theoretically informed empirical research papers. Examination of other types of manuscripts (e.g., reviews) included. Letter grading.

**226. Women's Health and Well-Being (4)** Lecture, four hours. Limited to graduate students. Interdisciplinary perspective critically examining research on women's health. Overview of scientific inquiry and methods; gender roles; status attainment and medical sociology. Review of current data on women's health. Letter grading.

**227. Conceptualizing and Measuring Structural Racism (4)** Lecture, three hours. Limited to graduate students. How structural racism and other forms of systematic inequality may contribute to health inequities. Moves beyond interpersonal experiences of racism to focus on ways to conceptualize, measure, and investigate racism perpetuated and maintained by social institutions. Letter grading.

**228. Introduction to Mixed Methods Research (4)** (Same as Health Policy and Management M228.) Seminar, three hours; discussion, one hour. Limited to graduate students. Highly recommended: Health Policy and Management 225A and 225B, or completion of coursework in basic research design and methods. Introduction to mixed methods research, with emphasis on its application to public health research. Equips students with skills to critique mixed method research designs and to design mixed methods research investigation for health issue of interest. Study of different mixed methods research designs commonly used in public health and health services research, including feasibility studies, convergent parallel design, sequential mixed methods, and multiphase studies. Use of combination of didactic and applied techniques. S/U or letter grading.

**229. Policy and Public Health Approaches to Violence Prevention (4)** Lecture, four hours. How policies relate to violence and development of skills to transmit this knowledge. Examination of wide range of policy topics and how each might be associated with reduction/increase in violence/violent injury. Letter grading.

**230. Family and Sexual Violence (4)** Lecture, three hours; community, three to four hours. Examination of rape, incest, and spouse and elder abuse. Presentation of definitions, causes, outcomes of research on family and sexual violence, as well as response of social service, medical, and criminal justice systems. Letter grading.

**231. Maternal and Child Nutrition (4)** Lecture, four hours. Nutrition of mothers, infants, and children in countries at various levels of socioeconomic development; measures for prevention and treatment of protein/calorie malnutrition; relationship between nutrition and mental development; impact of ecological, socioeconomic, and cultural factors on nutrition, nutrition education, and service. Letter grading.

**232. Determinants of Health (4)** (Same as Health Policy M242.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading.

**233. Hunger and Food Insecurity as Public Health Issues (4)** Lecture, three hours. Designed for graduate students. Public health aspects of hunger and food insecurity in historical and international perspectives, including measurement and identification of vulnerability, prevention, and options for relieving acute food shortage. Letter grading.

**234. Obesity, Physical Activity, and Nutrition Seminar (4)** (Same as Health Policy M255.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interven-

tions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading.

**235. Influence of Social and Physical Environment on Racial Health Disparities (4)** Seminar, three hours. Preparation: at least one biostatistics or epidemiology course. Limited to graduate students. Examination of how community stressors and neighborhood resources may contribute to health disparities. Discussion of multiple factors that contribute to environmental injustice and their potential solutions. Do health disparities arise because minorities and low-income populations live in harmful environments? Is relationship between environment and health disparities merely one of potential exposure to chemical/physical hazards, or are there psychosocial mechanisms at community level that act above or beyond effects of physical environment? Letter grading.

**237. Evolving Paradigms of Prevention: Interventions in Early Childhood (4)** (Same as Health Policy M290.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading.

**238. Evolving Paradigms of Prevention: Interventions in Adolescence (4)** Seminar, three hours. Adolescent health and interventions, with focus on sex, alcohol, and drug use. Focus on adolescent identity development, adolescent sexuality, discussion of gay, lesbian, bisexual, and transgender issues, components of sexual risk-taking behavior, and alcohol and drug use (e.g., peer influence, changes in brain activity) and interventions that have been developed to address these behaviors. Building of skills to work with adolescent populations and in community-based settings. Letter grading.

**239. Race, Ethnicity, and Culture as Concepts in Practice and Research (4)** (Same as Asian American Studies M239.) Seminar, three hours. Integration of cross-cultural findings in healthcare with current American (U.S.) healthcare system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

**240. Child and Reproductive Health in Communities: Global Environmental Perspective (4)** Lecture, three hours. Limited to graduate students. Examination of global issues of child and reproductive health in relation to environmental factors in interplay with socioeconomic and biological factors. Environmental influences are responsible for one quarter of total burden of disease worldwide, and for more than one third of burden among children—most of them living in resource-poor countries and communities. Discussion of impacts of qualitatively different, and potentially modifiable, factors such as access to safe water or urbanization, as well as environmental contribution to high-burden outcomes in childhood and reproduction. Focus on lower income settings and discussion of relevant population-based approaches to assessment and intervention. Letter grading.

**246. Women's Roles and Family Health (4)** Lecture, two hours; discussion, one hour. Rapidly changing roles of women throughout world are having important effects on women's own health and that of their families. Analysis of multidisciplinary research from both developing and industrialized countries to provide basis for in-depth discussion of programmatic and policy implications. Letter grading.

**247. Population Change and Public Policy (4)** Lecture, four hours. Examination of international population change, population-related policies, and public health implications of demographic processes. Letter grading.

**248. Primary Health Care (4)** (Same as Health Policy and Management M248.) Lecture, four hours. Strongly recommended prerequisite: Public Health 200A, 200B. Recommended prerequisite: course 200 or Health Policy and Management 240. Primary Health care (PHC) is considered to be foundation of all health systems and should be able to resolve 80 percent or more of population's health problems. Overview of organization, structure, and functions of primary health care with emphasis on low- and middle-income country settings. Study of history and origins of PHC, roles and functions of PHC in health systems, different organizational and managerial approaches to organizing and delivering health care within PHC framework, and tools for measuring how well PHC programs and services are functioning. Review and critical analysis of evidence-based on PHC effectiveness and impact and present detailed case studies of PHC programs in diverse settings around world. Letter grading.

**249L. Ethical Theory and Applications in Public Health (4)** (Same as Health Policy M285.) Lecture, four hours. Prerequisites: Health Policy 200A, 200B. Introduction to ethical theories and critical ethical issues pertaining to health-care policy and healthcare management. Research, writing, and discussion on variety of topics related to health and human rights to enhance profession-

alism, leadership, and systems thinking and improve student sensitivity to needs of patients, coworkers, and fiduciary shareholders. How ethics are foundation of leadership. Letter grading.

**250. HIV/AIDS and Culture in Latin America (4)** (Same as Latin American Studies M262.) Seminar, three hours. Exploration of cultural, political, and public health context for people living with and at risk for HIV/AIDS and their families in Latin America. Public health aspects, including epidemiology, comorbidity concerns and community interventions, medical anthropological study of experience of those impacted, and grass-roots responses, as well as political/economic context addressing poverty and structural violence. Letter grading.

**251. Nutritional Epidemiology I (4)** (Same as Epidemiology M254.) Lecture, two hours; discussion/laboratory exercise, one hour. Preparation: introductory biostatistics and epidemiology courses. Review of all aspects of contemporary nutrition sciences that require application of epidemiologic principles and methods, ranging from food-borne outbreak investigation to evidence-based regulatory assessment of health claims for foods. Experience in actual world of collecting, analyzing, and interpreting data related to nutrition and health or disease outcomes. S/U or letter grading.

**252. Health Policy Analysis (4)** (Same as Health Policy M233.) Lecture, three hours. Requisites: courses M276, Health Policy 200A, M236. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of lifecycle of public policy. Letter grading.

**254. Intentional Disasters: War and Refugees (2)** Lecture, two hours. Recommended requisites: courses 211A, 211B, 295, Epidemiology 100, one survey methods course. Previous international experience strongly encouraged. Overview of intentional disasters, with focus on technically underdeveloped areas and consequent population migration. Principal focus on health consequences of these events and strategies to address health issues. Letter grading.

**256. Interdisciplinary Response to Infectious Disease Emergencies: Public Health Perspective (4)** (Same as Medicine M256, Nursing M298, and Oral Biology M256.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Nursing during weeks two through five. Letter grading.

**257. Program Planning in Community Disaster Preparedness (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 211A, 211B, 295. Health education and emergency management principles combined to design, plan, implement, and evaluate community disaster preparedness programs, including needs assessment, identification of target population, objective writing, program planning, and process, outcome, and impact evaluation. Letter grading.

**258. Cooperative Interagency Management in Disasters (4)** Lecture, four hours. Recommended requisite: course 295. Designed for graduate students. Broad overview of how different agencies involved in disaster responses work together to handle impact of mass population emergencies. Identification of role of local, state, and federal governments, nonprofit and private sector organizations, media, and healthcare facilities in disaster situations. Students meet with representatives of different agencies involved in disaster responses and visit one of area's state-of-art emergency management operations facilities. Letter grading.

**259. Smoking, Drinking, Shooting, and Driving: Understanding Public Health Policy in U.S. (4)** (Same as Health Policy and Management M259.) Lecture, two hours; discussion, two hours. Recommended requisite: Community Health Sciences 286. Overview of essential theories regarding development, implementation, and impact of public health policies in U.S. with emphasis on state and local governments. Students develop skills in public health policy research (laws, regulations, statutes, ordinances) and engage in critically analyzing evidence for different approaches currently used to address some of main causes of death and disability in U.S. including tobacco, alcohol, firearms, food and nutrition, and motor vehicle safety. Readings, case studies, exploration of public use data, group discussions, and directed individual research. Students engage in discussion and debate regarding contemporary challenges and emerging trends. S/U or letter grading.

**260. Health and Culture in Americas (4)** (Same as Anthropology M233R and Latin American Studies M260.) Lecture, three hours. Recommended requisite: course 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

**263. Social Demography of Los Angeles (4)** (Same as Sociology M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in U.S. Examination of role of these factors in affecting health outcomes. Letter grading.

**264. Latin America: Traditional Medicine, Shamanism, and Folk Illness (4)** (Same as Anthropology M233Q and Latin American Studies M264.) Lecture, three hours. Recommended preparation: course 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

**270A. Foundations of Community Health Sciences (4)** Lecture, four hours. Enforced requisite: course 210. Course 270A is enforced requisite to 270B. Limited to departmental doctoral students. In-depth analysis of theories, methods, and research on which community health sciences are based. Letter grading.

**270B. Foundations of Community Health Sciences (4)** Lecture, four hours. Enforced requisites: courses 210, 270A. Limited to departmental doctoral students. In-depth analysis of theories, methods, and research on which community health sciences are based. Letter grading.

**271. Health-Related Behavior Change (4)** Lecture, four hours. Requisite: course 210. Unified behavioral science approach to natural determinants of change, as foundation for planned change in health-related behavior at community, group, and individual levels. Letter grading.

**272. Social Epidemiology (4)** (Same as Epidemiology M272.) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100 or Public Health 200A and 200B. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading.

**276. Complementary and Alternative Medicine (4)** Lecture, three hours. Requisite: course 210. Analysis of use and acceptance of complementary and alternative medicine (CAM) by clients and providers. Core beliefs of CAM, relationship of CAM and spirituality, licensure and certification of CAM providers, relationship of CAM and conventional medicine, impact of CAM on client identity. Letter grading.

**277. Advanced Community Health Education (4)** Lecture, two hours; discussion, two hours. Requisite: course 210. Before planning educational components of health program, one must assess behaviors and factors influencing health problem. Conceptual, theoretical, and evaluative skills developed and applied in constructing community-based educational program. Letter grading.

**278. Work and Health (4)** (Same as Environmental Health Sciences M270.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading.

**281A. Capstone Seminar: Health Promotion and Education (4)** Seminar, 90 minutes; discussion, 90 minutes. Enforced requisite: course 210. Current problems and findings in health promotion and education (e.g., nutrition, family health, AIDS/HIV, minority health); learning from presentations and critical discussions of master's project reports completed under faculty supervision. Letter grading.

**281B. Capstone Seminar: Health Promotion and Education (2)** Seminar, one hour; discussion, one hour. Current problems and findings in health promotion and education (e.g., nutrition, family health, AIDS/HIV, minority health); learning from presentations and critical discussions of master's project reports completed under faculty supervision. Letter grading.

**282. Social Marketing for Health Promotion and Communication (4)** Lecture, three hours; fieldwork, one hour. Requisite: course 210. Planning, creating, implementation, and evaluation of comprehensive health communication campaigns, including use of social marketing practices and strategies of audience research, marketing psychology, creative message development, branding, comprehensive media use for dissemination, transmedia. Competencies: conducting focus group interviews, creating and evaluating effective health campaigns, critical assessment of existing campaigns. Letter grading.

**283. Evidence-Based Health Promotion Programs for Older Adults (4)** Seminar, three hours. Requisite: course 210. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among aged. Letter grading.

**284. Sociocultural Aspects of Mental Health (4)** Seminar, three hours. Requisite: course 210. Designed for graduate students. Examination of how society shapes mental health of its members and lives of those who have been identified as mentally ill. Group differences (e.g., gender, ethnicity) in disorder and how it is socially constructed. Letter grading.

**286. Doctoral Roundtable in Community Health Sciences (4)** Seminar, two hours. Designed for departmental doctoral students who must enroll every term until they are advanced to candidacy. Interactive seminar with focus on research process and social mechanisms in science. May be repeated for credit. S/U grading.

**287. Politics of Health Policy (4)** (Same as Health Policy and Management M287 and Public Policy M266.) Lecture, three hours; discussion, one hour. Examination of politics of health policy process through analysis of case studies such as environmental protection, pandemic preparedness and response, preventive health services for women, and racial and income inequality and health. Examination of framework for assessing evidence-based policy making and effects of political structure and current political divisions, including efforts such as to repeal and dismantle Affordable Care Act. Letter grading.

**288. Health Communication in Popular Media (4)** Lecture, three hours; discussion, one hour. Requisites: course 210 or prior social sciences courses. Media utilization, media effects, media content, media advocacy, media literacy, health journalism, video and audio storytelling techniques, new media, entertainment education, and transmedia. Competencies: media content analysis, writing popular nonfiction (blogs, journalism), creating and evaluating effective communications using popular media. Letter grading.

**290. Race, Class, Culture, and Aging (4)** Lecture, three hours; discussion, one hour. Experience of aging for African American, Latino, and Asian elderly examined in context of their families, communities, and nation. Exploration of cultural and structural influences on health and lived experiences of those elders. Letter grading.

**291. Health Policy and Aging (4)** Lecture, three hours; discussion, one hour. Examination of political, economic, and social forces that shape health policy for aged, identifying failings in those policies within framework of broader health policy problems. Letter grading.

**292. Information Technology for Health Promotion and Communication (4)** Lecture, three hours; field practice, one hour. Requisites: course 210 or prior social sciences courses. Health literacy, Internet use and health communication, design of health communication materials using digital media that integrates practice and theory and includes websites, print materials, short videos, curricula, and training materials. Laboratory sessions for materials production. Competencies: creating health communication materials for diverse audiences using new media information technology applied to website, social media, print media, video, and audio platforms. Letter grading.

**293. Social and Behavioral Research in AIDS: Roundtable Discussion (2 to 4)** Discussion, two hours; individual consultation, two hours. Review and discussion of research programs directed toward identification of psychosocial, biobehavioral, environmental, and community factors related to prevention and control of AIDS/HIV. Letter grading.

**294. Social and Behavioral Factors of HIV/AIDS: Global Perspective (4)** (Same as Psychiatry M288.) Lecture, four hours. Requisites: course 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors that influence both transmission and prevention of HIV/AIDS throughout world. Letter grading.

**295. Overview of Emergency Public Health (4)** Lecture, four hours. Designed for graduate students. Overview of issues involved in disaster preparedness and response for public health agencies. Introduction to theoretical and practice aspects of field of emergency public health. Examination of disaster cycle and various natural and human-induced hazards from public health perspective. Letter grading.

**296. Advanced Research Topics in Community Health Sciences. (2 to 4)** Discussion, two to four hours. Advanced study and analysis of current topics in community health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U or letter grading.

**400. Field Studies in Public Health (4)** Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training doc-

umentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 60-unit minimum total required for MPH degree. Letter grading.

**411. Issues in Cancer Prevention and Control (4)** (Same as Health Policy M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of cancer epidemic, cancer control goals for nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

**420. Children with Special Healthcare Needs: Systems Perspective (4)** (Same as Health Policy M420 and Social Welfare M290L.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

**427. Reproductive Health in Sub-Saharan Africa (4)** Lecture, four hours. Recommended requisite: course 247. In-depth understanding of reproductive health challenges facing sub-Saharan Africa and main programs designed to address them. Topics include family planning, STIs, abortion, adolescents, HIV/AIDS, and refugees. Letter grading.

**428. Child and Family Health Program Community Leadership Seminar (2)** (Same as Health Policy M428.) Seminar, two hours. Designed for graduate students. Examination of characteristics of community-based organizations (CBOs) and role of leadership in decision-making process involved in major issues facing maternal and child health in Los Angeles County. Focus on specific leadership competencies that are or should be employed by organizations effective in shaping maternal and child health programs and policies (or any population-level policies and programs). Leaders from CBOs in Los Angeles meet with students, comment on their practicum experiences, and underscore community leadership concepts demonstrated by those CBOs. S/U or letter grading.

**430. Building Advocacy Skills: Reproductive Health Focus (4)** (Same as Health Policy M434.) Seminar, three hours. Recommended requisite: one prior health policy course such as Community Health Sciences 247 or Health Policy 235. Designed for School of Public Health graduate and doctoral students. Skills-building course to develop competency in assessing, developing, and implementing advocacy strategies for reproductive health initiatives. Introduction to legislative and community advocacy initiatives and to policymaking process, including policy analysis and development of resources necessary for legislative advocacy. Identification of advocacy goals and objectives, development of advocacy plan, coalition building, organizational capacity building, media relations, and message development for various audiences. Students learn about range of former and current reproductive health advocacy campaigns. Letter grading.

**431. Foundations of Reproductive Health (4)** Lecture, three hours. Limited to graduate students. Understanding reproductive technologies and practices is critical for public health students interested in designing programs to address problems such as unwanted pregnancy, family planning, sexually transmitted diseases, and inadequate preventive services. Examination of foundations of reproductive health from medical perspective, with particular attention to implications for public health programs, health services, and policy. Topics include anatomy and physiology of male and female reproductive health tracts, methods of birth control, medical and surgical abortion, infertility, maternal care, and sexual violence and trauma. S/U or letter grading.

**432. Perinatal Healthcare: Principles, Programs, and Policies (4)** Lecture, three hours; discussion, one hour. Comprehensive examination of perinatal healthcare, including perinatal epidemiology, outcome measures, public programs, controversies surrounding new technology, regionalization, organization of services at federal, state, and county levels, and medical/legal issues. S/U or letter grading.

**434A. Maternal and Child Health in Developing Areas (4)** Lecture, four hours. Requisite: course 231. Major health problems of mothers and children in developing areas, stressing causation, management, and prevention. Particular reference to adapting programs to limited resources in cross-cultural milieu. S/U or letter grading.

**435. Seminar: Advanced Issues in Women's Health (4)** Seminar, three hours. Preparation: at least one prior women's health course, one to two biostatistics courses, one research methods course. Provides more advanced and in-depth understanding of ways in which scientists know; and considerations of women's place in scientific discourse. Examination of series of case studies as starting point for discussion. Letter grading.

**436A. Child Health, Programs, and Policies (4)** (Same as Health Policy M449A.) Lecture, four hours. Course M436A is requisite to M436B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

**436B. Child Health, Programs, and Policies (4)** (Same as Health Policy M449B.) Lecture, four hours. Requisites: course M436A, Health Policy 100. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

**440. Public Health and National Security at U.S.-Mexico Border (4)** Lecture, two hours; discussion, one hour; research and literature review, one hour. Designed for graduate students. Exploration of community and environmental health and health services issues that are present along U.S.-Mexico and coastal California borders. Integrated within public health framework are issues and mitigation of national security and disaster/terrorist risks and hazards. Letter grading.

**441. Planning and Evaluation of Global Health Programs (4)** Lecture, four hours. Theory, guidelines, and team exercise for planning community health/family planning projects in U.S. and in developing countries. Phases include community needs identification; goal setting; budget and work plan development; funding; staffing; evaluation design; data and cost analysis; and project presentation. Letter grading.

**444. Anthropometric and Dietary Aspects of Nutritional Assessment (4)** Lecture, two hours; discussion, one hour; laboratory, two hours. Practical skills in anthropometric and dietary assessment, including selection of appropriate methods, data gathering and handling, and analysis and presentation. Letter grading.

**446. Nutrition Education and Training: Third World Considerations (4)** Lecture, two hours; discussion, one hour; student participation, one hour. Requisite: course 434A. Problems and priorities in nutrition education and training for families and health workers in Third World countries, including new concepts in primary healthcare services, mass media, communications, and governmental and international interventions. S/U or letter grading.

**447. Health and Social Context in Middle East (4)** Lecture, four hours. Recommended preparation: background in Islamic or Middle Eastern studies. Requisite: course 200 or 231 or 434A. Current health issues and problems of countries in Middle East and implications for socioeconomic development. Review of economic, demographic, and cultural variation of region to provide background for discussion of trends and patterns of health and nutritional status of population in area. Letter grading.

**448. Nutrition Policies and Programs: Domestic and International Perspectives (4)** Lecture, two hours; discussion, two hours; field visits. Preparation: one nutrition sciences course and/or nutrition program experience. Nutrition programs and policies in U.S. and developing countries compared and contrasted. Analysis of role of major international, governmental, and nongovernmental agencies. Emphasis on meeting needs of vulnerable populations. Letter grading.

**449. Nutrition and Chronic Disease (4)** Lecture, four hours. Requisite: course 130 or one introductory nutrition or biology course. Advanced-level seminar on nutritional needs of healthy individuals, current knowledge of role of nutrition in disease prevention, nutritional and metabolic responses to disease, and role of nutritional therapy in management of disease. Letter grading.

**451. Post-Disaster Community Health (4)** Lecture, four hours. Examination of how public health research and practices can be combined to address post-disaster community health needs. Identification of disaster-related health problems, data collection strategies, and service delivery approaches in post-disaster environment. Letter grading.

**452. Management of Food and Nutrition in Major Emergencies (4)** Lecture, three hours. Designed for second-year master's or doctoral students interested in humanitarian relief. Basic principles required to design rational and cost-effective food and nutrition emergency relief approaches and programs. Letter grading.

**CM470. Improving Worker Health: Social Movements, Policy Debates, and Public Health (4)** (Same as Environmental Health Sciences M471 and Urban Planning M470.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. Concurrently scheduled with course CM170. S/U or letter grading.

**477. Health Disparities, Health Equity, and Sexual Minority Populations (4)** Lecture, two hours; discussion, one hour. Limited to graduate students. Examination of health disparities affecting sexual minority populations, category that includes lesbians, gay men, bisexuals, and transgender (LGBT) persons.

Use of Healthy People 2010 Companion Document for LGBT Health to outline key health issues and national recommendations for achieving reductions in each area. Discussion of considerations for providing clinical care and public health practice in this population, unique social and contextual factors influencing LGBT health, and methodological issues for conducting research among LGBT persons. S/U or letter grading.

**482. Practicum: Community Health Sciences (4)** Discussion, two hours; fieldwork, up to 20 hours. Requisites: courses 210, 211A, 211B. Understanding of professional practice in health-related organizations. Letter grading.

**484. Risk Communications (4)** Lecture, three hours; fieldwork, one hour. Requisites: courses 210, 211A, and 211B, or prior public health and behavioral sciences courses. Risk communication theory, research, and practice, including social and psychological bases of population risk perceptions, media theories, and how risk is portrayed in media. Environmental, product safety, food-borne and infectious diseases, disasters, and bioterrorism communication. Competencies: understanding everyday and emergency risk communication principles, creating valid risk communication messages and materials, working proactively with new media. Letter grading.

**485. Resource Development for Community Health Programs (4)** Lecture, three hours; fieldwork, one hour. Enforced requisites: courses 211A, 211B, Public Health 200A, 200B, or permission of instructor. Designed for graduate students. Overview course of fund and resource development for public health and community-based programs. Lectures and workshops include developing grant proposals, researching funding sources, evaluating proposals, developing volunteer and in-kind resources, and implementing capital campaigns. Letter grading.

**487. Community Organization for Health (4)** Lecture, three hours; fieldwork, four to six hours. Preparation: three public health, sociology, or anthropology courses. Requisite: course 210. Theory and practice of community organizations, including models and strategies of community organization and their application to health problems and health policy. Particular attention to use of community organization for health promotion and to change public policy. Letter grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research. (2 to 8)** Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research. (2 to 12)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

# Comparative Literature

## Comparative Literature Courses

### Lower Division

**1A. World Literature: Antiquity to Middle Ages (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2AW or 4AW. Study of major texts in world literature, with emphasis on Western civilization. Texts include major works and authors such as Iliad or Odyssey, Greek tragedies, portions of Bible, Virgil, Petronius, St. Augustine, and others such as Gilgamesh or Tristan and Iseult. P/NP or letter grading.

**1B. World Literature: Middle Ages to 17th Century (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of world literature, with emphasis on Western civilization as it grapples with its past and with other civilizations. Examination of works such as Dante's Divine Comedy, Cervantes' Don Quixote, Shakespeare's King Lear, and Sor Juana's Mexican poetry. P/NP or letter grading.

**1C. World Literature: Age of Enlightenment to 20th Century (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2CW or 4CW. Study of major texts in world literature, with emphasis on Western civilization. Authors include Swift, Voltaire, Diderot, Rousseau, Goethe, Flaubert, Ibsen, Strindberg, Dostoevsky, Kafka, Joyce, Woolf, and Stevens. P/NP or letter grading.

**1D. Great Books from World at Large (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2DW or 4DW. Study of major literary texts usually overlooked in courses that focus only on canon of Western literature. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. P/NP or letter grading.

**1E. Social Media and Storytelling: Comparing Cultures (5)** Lecture, two hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of ways in which social media construct increasingly diverse and decentered narratives—with which we make localized sense of world. Equal emphasis on textual, visual, and sonic networks in arts, politics, and health care. P/NP or letter grading.

**1H. Health Humanities (5)** Lecture, two hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to health humanities, including literary and cultural examinations of health, illness, embodiment, medicine, and health care. Focus on the diversity of individual, cultural, and societal experiences. Study of literary texts in dialogue with other disciplines in the social sciences, life sciences, health sciences, humanities, and arts. P/NP or letter grading.

**2AW. Survey of Literature: Antiquity to Middle Ages (5)** Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1A or 4AW. Study of selected texts from antiquity to Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as Odyssey, Gilgamesh, Sappho, Greek tragedies, Aeneid, Petronius, Beowulf, Marie de France, Tristan and Iseult, One Thousand and One Nights, Popul Vuh. Satisfies Writing II requirement. Letter grading.

**2BW. Survey of Literature: Middle Ages to 17th Century (5)** Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1B or 4BW. Study of selected texts from Middle Ages to 17th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Chaucer, Dante, Cervantes, Marguerite de Navarre, Shakespeare, Calderón, Molière, and Racine. Satisfies Writing II requirement. Letter grading.

**2CW. Survey of Literature: Age of Enlightenment to 20th Century (5)** Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 1C or 4CW. Study of selected texts from Age of Enlightenment to 20th century, with emphasis on literary analysis and expository writing. Diderot, Dostoevsky, Flaubert, Goethe, Ibsen, James Joyce, Kafka, Jamaica Kincaid, García Márquez, Rousseau, M. Shelley, Strindberg, Swift, Voltaire. Analysis of texts includes focus on struc-

tures, processes, and practices that generate inter-group inequities or conflicts as well as those that support fairness and inclusiveness. Satisfies Writing II requirement. Letter grading.

**2DW. Survey of Literature: Great Books from World at Large (5)** Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 1D or 4DW. Study of major literary texts usually overlooked in courses that focus only on canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Analysis of texts includes focus on structures, processes, and practices that generate inter-group inequities or conflicts as well as those that support fairness and inclusiveness. Satisfies Writing II requirement. Letter grading.

**4AW. Literature and Writing: Antiquity to Middle Ages (5)** Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1A or 2AW. Study and discussion of selected texts from antiquity to Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as Iliad, Odyssey, Gilgamesh, Sappho, Greek tragedies, Aeneid, Petronius, Beowulf, or Marie de France. Satisfies Writing II requirement. Letter grading.

**4BW. Literature and Writing: Middle Ages to 17th Century (5)** Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1B or 2BW. Study and discussion of selected texts from Middle Ages to 17th century, with emphasis on literary analysis and expository writing. Texts may include works and authors such as Chaucer, Dante's Divine Comedy, Cervantes' Don Quixote, Shakespeare, One Thousand and One Nights, Christine de Pizan, Popul Vuh, Molière, and Racine. Satisfies Writing II requirement. Letter grading.

**4CW. Literature and Writing: Age of Enlightenment to 20th Century (5)** Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1C or 2CW. Study and discussion of selected texts from Age of Enlightenment to 20th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Swift, Voltaire, Diderot, Rousseau, Goethe, M. Shelley, Flaubert, Ibsen, Strindberg, Dostoevsky, Gogol, Kafka, Joyce, Beckett, L. Hughes, and García Márquez. Satisfies Writing II requirement. Letter grading.

**4DW. Literature and Writing: Great Books from World at Large (5)** Seminar, four hours. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 1D or 2DW. Study and discussion of major literary texts usually overlooked in courses that focus only on canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Texts may include works by authors such as Achebe, Can Xue, Desai, Emecheta, Kincaid, Neruda, Ngugi, Pak, Rushdie, and El Saadawi. Analysis of texts includes focus on structures, processes, and practices that generate inter-group inequities or conflicts as well as those that support fairness and inclusiveness. Satisfies Writing II requirement. Letter grading.

**10. Virtual Realities: Introduction to Humanities (5)** Lecture, two hours; discussion, two hours. What exactly are humanities? Position of humanities as not science is becoming unclear as human communication, thought, and culture are increasingly tied to technology. Examination of various disciplines within humanities at UCLA to define their place in today's society, contemplate their possible function in tomorrow's world, and determine to whom humanities will and will not cater in future. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Blockchain: Future of Absolutely Everything (5)** Lecture, three hours; discussion, one hour. Interdisciplinary examination of social, cultural, and scientific workings of blockchain. Critical exploration of ethical, legal, and cultural effects of blockchain's potential to improve human behavior and impact our sense of individuality. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater



depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Introduction to Literary and Critical Theory (5)** Lecture, four hours. Preparation: satisfaction of Entry-Level Writing and College Writing requirements. Requisites: two courses from Comparative Literature 1 or 2 series or English 10 series or Spanish 60 series, etc. Seminar-style introduction to discipline of comparative literature presented through series of texts illustrative of its formation and practice. Letter grading.

**101. Hebrew Literature in English: Literary Traditions of Ancient Israel—Bible and Apocrypha (4)** (Same as Jewish Studies M150A.) Lecture, three hours. Study of literary culture of ancient Israel through examination of principal compositional strategies of Hebrew Bible and Apocrypha (read in translation). P/NP or letter grading.

**102. Classical Tradition: Epic (4)** Seminar, three hours. Designed for upper-division literature majors. Analysis of Iliad, Odyssey, Aeneid, Jerusalem Liberator, and Paradise Lost both in relation to their contemporary societies and to literary traditions. Emphasis on how poets build on work of their predecessors. P/NP or letter grading.

**103. People on Run: Migrants, Minorities, and Multiculturalism in Europe (4)** Seminar, three hours. Problem of migrants and refugees in ongoing crisis of European Union. Examination of contemporary crisis of European Union and of European multiculturalism in particular. Overview of history of European integration since World War II, as well as more focused examination of ways in which culture and migration have come to dominate discussions of future of what had primarily been conceived of as one economic union. Offered in summer only. P/NP or letter grading.

**104. Art of Film Adaptation (4)** Seminar, three hours. Engagement with current debates and key theoretical texts about film adaptation. Exploration of art of film adaptation in broad sense, including transformation of short stories, plays, novels, historical accounts, biographies, paintings, musical compositions, or philosophical concepts into multilayered medium of cinema. Adaptations addressed include selection of films from range of cultural and linguistic traditions by directors such as Kiarostami, Varda, Kurosawa, Babenco, Rossellini, Hitchcock, Antonioni, Kieslowski, and Teymor. Specific directors, films, and cinematic traditions vary year to year. P/NP or letter grading.

**C105. Comic Vision (4)** Lecture, three hours. Designed for upper-division literature majors. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with course C205. Undergraduate students read all works in translation. P/NP or letter grading.

**106. Archetypal Heroes in Literature (4)** Seminar, three hours. Designed for juniors/seniors. Survey and analysis of function and appearance of such archetypal heroes as Achilles, Ulysses, Prometheus, Oedipus, and Orpheus in literature from antiquity to modern period. All works read in translation. P/NP or letter grading.

**107. Film on Brain (4)** Seminar, three hours; discussion/analysis, two hours; film laboratory, one hour. Designed for juniors/seniors. Survey and analysis of intersections between film analysis and neuroscience. Exploration of questions such as how do cues on screen prompt emotions in mind; what are viewers' neurological responses to comedy; what are potential affective impacts of color; how do brains respond to screen violence. Investigation of emotional contagion that occurs between certain screen characters and certain viewers, including in narrative structures acknowledged to be fictitious. Analysis of filmic strategies and techniques employed by directors to elicit emotional responses from audiences. Students learn to produce five- to eight-minute film on relevant topic in film laboratory. P/NP or letter grading.

**108. Autobiography in Francophone and Anglophone Worlds (5)** Seminar, three hours. Designed for juniors/seniors. Focus on number of narratives that use autobiographical mode to situate self in relation to history of nations and biography of family members. Introduction to theories of subjectivity and to genre of self-writing in France, Africa, and Caribbean. Comparison of serial autobiographies of Assia Djebar, Annie Ernaux, and Jamaica Kincaid to better understand limits of genre. Texts represent different limit cases of autobiography and can be read as biography, auto/ethnography, and auto/historiography. Examination of differences that emerge between autobiographical pact

(Lejeune) that some authors create with their readers and liberties that others take with history. Attention to way visual culture (painting, photography, film) helps authors make their point, access memory, or create metaphors of self. P/NP or letter grading.

**110. One Thousand and One Nights/Alf Layla Wa-Layla (4)** (Same as Arabic M110.) Lecture, three hours. Knowledge of Arabic not required. Since its appearance in Europe in 1704, *One Thousand and One Nights* is most well-known work of Arabic literature in West. Examination of cycle of tales more commonly known as *Arabian Nights*, including history of its translation, contemporary oral performances of tales in Arabic-speaking world, literary emergence of vernacular language in relation to classical Arabic, and Western appropriations of tales in music, film, and novels (Ravel, Rimsky-Korsakov, Barth, Poe, and Walt Disney). P/NP or letter grading.

**111. Histories and Methodologies of Comparative Literature (5)** Seminar, three hours. Preparation: satisfaction of Entry-Level Writing and College writing requirements. Requisites: two courses from Comparative Literature 1 or 2 series or English 10 series or Spanish 60 series. Recommended: course 100. Exploration of history of comparative literature discipline and variety of central methodological past and present debates concerning nature of discipline. Introduction to several key theoretical texts from early 20th century to present, addressing these and other related questions: what does it mean to read comparatively? What is significance of reading literature across existing national and linguistic borders? What are criteria for conducting such comparative readings? Is comparative reading more concerned with finding similarities or differences? P/NP or letter grading.

**112. Poetics of Hip-Hop (4)** Seminar, three hours. Exploration of poetics of hip-hop within tradition of comparative literature. Examination of rhythm, rhymes, flow, wordplay, traditions of signifying, beats, samples, production, and hermeneutics of music videos within historical framework. Historical and current hip-hop criticism and scholarship from comparative perspective, with goal of developing methods, approaches, and strategies for interpreting and writing about hip-hop. P/NP or letter grading.

**113. Opera in LA Live (4)** Seminar, three hours; field trips. Interpretation of operas currently being performed in Los Angeles from critical perspective of comparative literature studies. Content varies to match changing repertoire. Critical exploration and relation of every aspect of opera as literary and musical form. Analysis and interpretation of original literary source and libretto, music, singing, staging, dramaturgy, reception, and live performance. Two or more field trips to LA Opera, UCLA Opera, and/or Long Beach Opera to experience opera. P/NP or letter grading.

**119. Al-Andalus: Literature of Islamic Spain (4)** (Same as Arabic M155.) Lecture, three hours. Study of literature of Islamic Spain to learn about interaction of Arabic and Western and Arabic and Jewish cultures and to recognize Islamic culture as vital force in European life and letters. P/NP or letter grading.

**120. Women and Literature in Southeastern Europe (4)** (Same as Central and East European Studies M120.) Seminar, three hours. Examination of changing roles of women in Balkan countries (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Serbia, Slovenia, Turkey) in last forty years. Emphasis on cultural, social, political, and economic factors affecting women's roles during countries' transition from agricultural to industrial economy and from communism to post-communism (in former communist countries). Sensitizes students to complexity of issues in region and helps them better understand multiplicity of causes of present situation. Interdisciplinary study, drawing on sociological/women's studies, articles, and short fiction by women writers for analysis. Discussion of topics covered in articles, positions taken by authors, and ways in which aspects of Southeast European realities are rendered in fictional form by women writers from region. P/NP or letter grading.

**C122. Renaissance Drama (4)** Lecture, three hours. Designed for upper-division literature majors. Broad introduction to subject matter and types of plays in Renaissance, with consideration of historical and literary influences on plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C222. Undergraduate students read all works in translation. P/NP or letter grading.

**123. Oral Literature and Performance of Arab World (4)** (Same as Arabic M123.) Lecture, three hours. Knowledge of Arabic not required. Introduction to study of living oral traditions of troubadours, storytellers, oral poets, and performers in Arabic-speaking Middle East. P/NP or letter grading.

**132. Comparative Media Studies (4)** (Same as Russian M132.) Lecture, three hours. History, form, and function of various media. Grounded in political and commercial experience of eastern Europe, comparative investigation of media technologies, today's burgeoning markets, and yesterday's tragic

abuses. Development of media form(s) and content across various times, places, and cultures, with special attention to Slavic phenomena. Letter grading.

**142. Travel Narratives, Testimony, Autobiography (4)** (Same as Portuguese M142C.) Lecture, four hours. Taught in English. Exploration of travel, memory, and narrative in Portuguese-speaking world. Primary and secondary texts depict issues of displacement, cultural contact, and assimilation. Overview of connections among Portuguese-speaking cultures. May be repeated for credit with topic change. P/NP or letter grading.

**148. Contemporary Arab Film and Song (4)** (Same as Arabic M148.) Seminar, three hours. Exploration of conjunctions between contemporary Arab film and song and between popular cultures and cultures of commitment (litizim), with possible focus on specific genres such as realist/neorealist Arab film; feminist Arab film or popular Arab film and song; topics such as nation, gender, and representation or democracy and human rights or censorship, reception, and resistance. Possible examination of various national cinemas such as Tunisian, Egyptian, Moroccan, Algerian, and Palestinian. Various musical genres such as Rai, Mizoued, and Hip-hop also examined in relation to emergence not only of national cinemas, national music industries, and iconic singers but also of video clip, satellite TV, star academy, and reality shows—all products of transnational and pan-Arab mass media. P/NP or letter grading.

**C152. Symbolism and Decadence (5)** Seminar, four hours. Designed for upper-division literature majors. Study of symbolist and decadent movements in 19th- and 20th-century English and French poetry and prose, including authors such as Baudelaire, Rimbaud, Verlaine, Mallarmé, Wilde, Yeats, and Eliot. May be concurrently scheduled with course C252. Undergraduate students may read all required French texts in translation. P/NP or letter grading.

**C153. Post-Symbolist Poetry and Poetics (5)** Seminar, four hours. Designed for upper-division literature majors. Study of specific poets and poetics related to them during first half of 20th century. Texts may include poets such as W.B. Yeats, Ezra Pound, T.S. Eliot, Paul Valéry, R.M. Rilke, Gunnar Ekelöf, and Wallace Stevens. May be concurrently scheduled with course C253. Undergraduate students may read all works in translation. P/NP or letter grading.

**154. Adventures of Avant-Garde (5)** Seminar, four hours. Designed for upper-division literature majors. Interdisciplinary study of avant-garde literature and art, including futurism, Dadaism, Expressionism, Surrealism, new avant-gardes. Works by Marinetti, Boccioni, Picasso, Stein, Malevich, Popova, Mayakovsky, Brecht, Fritz Lang, Duchamp, Breton, Buñuel, Lisspector, Warhol, Orlan. Emphasis on cross-fertilization among different kinds of aesthetic expression. P/NP or letter grading.

**C156. Fantastic Fictions (4)** Seminar, three hours. Designed for upper-division literature majors. Time and again in modern literature, corpses become conduits or catalysts for revelation. What are ghosts that fiction frequently cannot put to rest, and what is their connection to national history or nation language or narrative? Readings from James Joyce, John Banville, Henry James, Toni Morrison, Adolfo Bioy Casares, Juan Carlos Onetti, Juan Rulfo, and Carlos Fuentes, with films by Alejandro Amenabar, Andrei Tarkovsky, and Kenji Mizoguchi. May be concurrently scheduled with course C256. Undergraduate students read all works in translation. P/NP or letter grading.

**C160. Literature and Visual Arts (4)** Lecture, three hours. Designed for juniors/seniors. Knowledge of art history valuable but not required. Assuming that literature and visual arts are in some degree expressions of cultural and philosophical patterns of eras, study of relationships between writers and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between plastic and verbal arts in comparative study. May be repeated for credit with instructor and/or topic change. May be concurrently scheduled with course C260. Undergraduate students read all works in translation. P/NP or letter grading.

**C161. Fiction and History (4)** Seminar, three hours. Designed for upper-division literature majors. Analysis of use of historical events, situations, and characters in literary works of Renaissance and/or modern period. Texts and individual assignments range from Renaissance historical narratives (Italian humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendhal, Verga, Tomasi di Lampedusa, Carpentier, and Kundera. Use of fictional methods by historians. Emphasis on how aesthetic, ideological, and political factors influence authors' choice and use of historical material. May be concurrently scheduled with course C261. P/NP or letter grading.

**162. Israel Seen through Its Literature (4)** (Same as Jewish Studies M162.) Lecture, three hours. Attempt to impart profound understanding of Israel as seen through its literature. Examination of variety of literary texts—stories, novels, and poems—and reading of them in context of their historical backgrounds. P/NP or letter grading.

**C163. Crisis of Consciousness in Modern Literature (5)** Seminar, three hours. Designed for upper-division literature majors. Study of modern European and American works that are concerned both in subject matter and artistic

methods with growing self-consciousness of human beings and their society, with focus on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C263. Undergraduate students may read all works in translation. P/NP or letter grading.

**C164. Modern European Novel (5)** Seminar, three hours. Designed for upper-division literature majors. Study of modern European novel's development from 19th to 21st century. Use of authors such as Hardy, Strindberg, Lagerkvist, Gide, Proust, Mann, Joyce, Kafka, Woolf, Nabokov, Grass, Christa Wolf, and Enquist to focus on development of themes such as shifting authority, gender conflicts, change versus stability, formal experimentation, and self-consciousness in narrative. May be concurrently scheduled with course C264. Undergraduate students may read all works in translation but are encouraged to read in original language whenever possible. P/NP or letter grading.

**165. Holocaust in Literature (4)** (Same as Jewish Studies M187.) Lecture, three hours. Investigation of how Holocaust informs variety of literary and cinema works and raises wide range of aesthetic and moral questions. P/NP or letter grading.

**166. Modern Jewish Literature in English: Diaspora Literature (4)** (Same as Jewish Studies M151A.) Lecture, three hours. Study of literary responses of Jews to modernity, its challenges, and threats. Readings in texts originally written in English or translated from Hebrew, Yiddish, German, Russian, French, and Italian. Analysis of formal aspects of each work. P/NP or letter grading.

**167. Modern Arabic Literature in English (4)** (Same as Arabic M151.) Lecture, three hours. Designed for upper-division literature majors. Topics may include constructions of otherness in modern Arab culture; East-West debate; memory, trauma, and mourning; violence, narrative, and ethics; globalization, oil, and cultural insurgency; Arab culture in transnational context or questions of reception, exoticism, translation, and marketing. Genres may include prison narratives; novel of terror; memoirs by women and/or by refugees and exiles; 19th- and 20th-century travel narratives; Arabic romantic poetry; literature of pre-1948; rise of Arab novel. Areas may range from generic look at Arab world to narrow focus on Maghreb or one country such as Algeria, Palestine, Iraq, Lebanon, or Egypt. May also be organized around Arab literatures written in one specific language, namely English, Arabic, or French. Letter grading.

**169. Continental African Authors (4)** Lecture, three hours. Requisite: one course from 1A, 1B, 1C, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Introduction to new set of African authors and attempt to discern similarities or differences they may have with major authors such as Achebe, Ngugi, Armah, Soyinka, etc. P/NP or letter grading.

**CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature (5)** (Same as Gender Studies CM170.) Seminar, three hours. Designed for upper-division literature majors. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM270. P/NP or letter grading.

**171. Chinese Immigrant Literature and Film (4)** (Same as Asian American Studies M130B and Chinese M153.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

**C172. Postmodern Novel (4)** Seminar, three hours. Designed for upper-division literature majors. Study of postmodern novel as it developed out of modernism. Postmodernism defined in three different ways—philosophically, scientifically, and economically. Emphasis on relationship of recent novels to theories of structuralism and poststructuralism. Readings include authors such as Borges, Beckett, Nabokov, Pynchon, Fuentes, Grass, Böll, and Calvino. Concurrently scheduled with course C272. Undergraduate students read all works in translation. P/NP or letter grading.

**175. Race, Gender, Class (5)** (Same as Asian American Studies M165.) Seminar, three hours. Theoretical and literary readings combined to explore three main aspects of social and cultural experience (race, gender, class) as separate but interconnected spheres affecting both minority and majority populations in U.S. Examination of these issues from comparative perspectives. P/NP or letter grading.

**176. Literature and Technology (4)** (Same as Japanese M156.) Lecture, three hours. Knowledge of Japanese not required. Examination of representation of technology in 20th-century fiction. Discussion of impact of technology on shifting images of gender, subjectivity, and national identity. P/NP or letter grading.

**177. Comparative Studies of Francophone and Anglophone Caribbean (5)**

Seminar, three hours. Designed for juniors/seniors. Introduction to literature and culture of Caribbean basin from New Orleans to Haiti, Martinique, Guadeloupe, Jamaica, Antigua, or Trinidad. Topics include history of French and English colonial influences and rivalries, Haitian revolution and its literary legacies, emergence of nationalist discourses, search for cultural identity, rhetoric of negritude, global poetics of relation, *créolité* movement, and literary achievements of African diaspora. P/NP or letter grading.

**C178. India Ink: Literature and Culture of Modern South Asia (5)**

Seminar, three hours. Survey of significant issues in history of 20th-century Indian literature and culture. Great works of modern Indian culture by such figures as Rabindranath Tagore, Satyajit Ray, Faiz Ahmed Faiz, and U.R. Anantha Murthy, including novels, short stories, poetry, films, music, and works in cultural criticism and historical scholarship. Central and defining issue for 20th-century Indian culture is experience of British colonial rule and massive cultural and material changes that accompanied it. Exploration of manner in which literature and culture have developed in interaction with powerful social forces, such as struggle for national independence from Britain under leaders like Mahatma Gandhi and expansion of Indian diaspora. Concurrently scheduled with course C278. P/NP or letter grading.

**179SL. Movement in Art, Philosophy, and Daily Life (5)** (Same as Middle Eastern Studies M179SL.)

Seminar, three hours; fieldwork, three hours. Exploration of relation between humans and world. Only relevant output of brain, irrespective of what may or may not go on inside it, is control over movements. In living animals, sentience or consciousness exists to integrate often complex input and decide on course of action. Similarly, ownership and agency are inseparably associated with biological systems that control our movements. Movements play vital part in constructing psychosocial environment that permeates and surrounds us. Exploration of how humans and animals move, and how movement, as well as limitations of mobility, relate to personal and community identity. P/NP or letter grading.

**180. Variable Topics: Medical Humanities in Comparative Contexts (4)**

Seminar, three hours. Designed for juniors/seniors. Study and discussion of defined periods and approaches in medical humanities, giving pride of place to literary and cultural expressions in dialogue with other disciplines such as anthropology, history, linguistics, philosophy, psychology, or sociology. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**180SL. Variable Topics: Medical Humanities in Comparative Contexts and Community-Based Learning (4)**

Seminar, three hours; fieldwork, three hours. Exploration of topics in medical humanities with community service component, giving pride of place to literary and cultural expressions with other disciplines such as art, philosophy, or sociology. Ways in which medical humanities can make contributions to Los Angeles community through service learning. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**186. Undergraduate Research Seminar: Comparative Literature (4)**

Seminar, three hours. Preparation: satisfaction of Entry-Level Writing and College Writing requirements. Designed for undergraduate students interested in learning more about research and/or writing honors thesis. Introduction to research in comparative literature, with focus on critical and theoretical methodologies and approaches to analyzing literary texts. Students complete final paper on topic of their own design. P/NP or letter grading.

**C187. Reading across Culture (5)**

Seminar, three hours. What is it we do when we try to understand words, habits, gestures, and beliefs not our own? Do we understand something foreign to us by immersing ourselves in it or by standing apart? Does ability to understand something foreign imply taking universal standpoint? Can we make judgments about beliefs other than our own? Questions of cultural interpretation have long history in both Western and non-Western cultures. Discussion of history of questions about cross-cultural interpretation and comparative interpretation of cultures in both comparative literature and cultural anthropology. Reading of some very complex and influential works by such writers as Claude Lévi-Strauss, Amitav Ghosh, James Clifford, Edward Said, Gayatri Spivak, and Erich Auerbach. Concurrently scheduled with course C287. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)**

Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)**

Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)**

Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)**

Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)**

Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Comparative Literature (2)**

Seminar, three hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

**191. Variable Topics in Comparative Literature (4)**

Seminar, three hours. Designed for juniors/seniors. Study and discussion of limited periods and specialized issues and approaches in literary theory, especially in relation to other modes of discourse such as history, philosophy, psychology, linguistics, anthropology. Development of culminating project required. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**191P. Careers in Humanities (4)** (Same as English M191P and Musicology M176.)

Seminar, three hours. Challenges misassumptions regarding humanities majors and their practical applications to life after graduation. Exploration of wide range of careers, with hands-on practice in crafting professional narrative. Guest lectures from UCLA professionals and alumni—all experts in career planning and local industry. Students engage with workplace leaders, and simultaneously build professional dossier—on paper or online—in preparation for life after UCLA with a humanities degree. P/NP or letter grading.

**197. Individual Studies in Comparative Literature. (2 to 4)**

Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198. Honors Research in Comparative Literature. (2 to 4)**

Tutorial, three hours. Limited to senior comparative literature honors students. Development and completion of honors thesis or comprehensive project on comparative topic selected by student and written under supervision of core faculty member. Students expected to meet regularly with supervisor throughout term. No more than one course may be used to fulfill four-course requirement for Comparative Literature majors. May be repeated once for maximum of 8 units. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Comparative Literature. (2 to 4)**

Tutorial, three hours. Requisite: course 100. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with consent of chair. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Theory of Comparative Literature (6)**

Seminar, three hours. Study of theory of literature, with emphasis on genealogy of theoretical problems. S/U or letter grading.

**200B. Methodology of Comparative Literature (6)**

Seminar, three hours. Requisite: course 200A. Study of methodology of comparative literature, with emphasis on its history. S/U or letter grading.

**202. Classical Tradition: Epic, Tragedy, or Comedy (4)**

Seminar, three hours. Preparation: reading knowledge of Greek, Latin, or Italian. Analysis of Greek and Roman works and their re-creations in Renaissance and modern periods.

Emphasis on how poets build on work of their predecessors. Reading may range from *Iliad* or *Odyssey* to tragedies by Sophocles and Euripides or satires by Aristophanes. S/U or letter grading.

**C205. Comic Vision (4)** Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with course C105. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

**206. Archetypal Heroes in Literature (4)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Survey and analysis of function and appearance of such archetypal heroes as Achilles, Ulysses, Prometheus, Oedipus, and Orpheus in literature from antiquity to modern period. S/U or letter grading.

**210. Comparative Studies in Autobiography (5)** Seminar, three hours. Limited to graduate students. Introduction to theories of autobiography and subjectivity and to genre of autobiography in literatures in French and English and across centuries. Topics include early modern approaches to self-writing, Rousseau and emergence of modern self, women's autobiography, postcolonial autobiography, cultural studies and turn to personal, fictions of self-representation, serial autobiography, and virtual selves. Theorists may include Georges Gusdorf, Philippe Lejeune, Paul de Man, Jacques Derrida, Helene Cixous, Michel Foucault, Pierre Bourdieu, and Toril Moi. S/U or letter grading.

**220. Topics in Medieval Studies (4)** Seminar, four hours. Preparation: reading knowledge of one appropriate foreign language. Examination of nature of cross-cultural, cross-linguistic, and cross-confessional exchange in known medieval worlds of Europe, Asia, and Africa, with focus on communication and translation. Drawing on literary, social, cultural, economic, art history, and manuscript studies to trace formation of discourses produced by diverse encounters. Choice of bilingual texts. May be repeated for credit with topic change. S/U or letter grading.

**C222. Renaissance Drama (4)** Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Broad introduction to subject matter and types of plays in Renaissance, with consideration of historical and literary influences on plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C122. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

**250. Seminar in Experimental Critical Theory (4)** Seminar, three hours. Advanced course in critical theory, drawing on wide range of approaches and methods, from anthropology, art, history, literature, performance, philosophy, and political theory. Variable topics are set annually. Includes canonical thinkers (e.g., J. Butler, J. Derrida, M. Detienne, G. Dumézil, F. Hérítier, B. Latour, C. Lévi-Strauss, A. Mbembe, E. Renan, M. Strathern) and contemporary critics (e.g., E. Apter, B. Cassin, E. Coccia, S. Bachir Diagne, W. Chi Dimock, P. Frankopan, S. Hartman, L. Lowe, J. Osterhammel, J.-F. Schaub, G. Spivak, E. Viveiros de Castro). S/U or letter grading.

**250A. Seminar in Experimental Critical Theory (4)** Seminar, three hours. Enforced requisite: course 200A. Advanced course in critical theory, drawing on wide range of approaches and methods, from anthropology, art, history, literature, performance, philosophy, and political theory. Variable topics are set annually. Includes canonical thinkers (e.g., J. Butler, J. Derrida, M. Detienne, G. Dumézil, F. Hérítier, B. Latour, C. Lévi-Strauss, A. Mbembe, E. Renan, M. Strathern) and contemporary critics (e.g., E. Apter, B. Cassin, E. Coccia, S. Bachir Diagne, W. Chi Dimock, P. Frankopan, S. Hartman, L. Lowe, J. Osterhammel, J.-F. Schaub, G. Spivak, E. Viveiros de Castro). S/U or letter grading.

**250B. Seminar in Experimental Critical Theory (4)** Seminar, three hours. Enforced requisite: course 250A. Advanced course in critical theory, drawing on wide range of approaches and methods, from anthropology, art, history, literature, performance, philosophy, and political theory. Variable topics are set annually. Includes canonical thinkers (e.g., J. Butler, J. Derrida, M. Detienne, G. Dumézil, F. Hérítier, B. Latour, C. Lévi-Strauss, A. Mbembe, E. Renan, M. Strathern) and contemporary critics (e.g., E. Apter, B. Cassin, E. Coccia, S. Bachir Diagne, W. Chi Dimock, P. Frankopan, S. Hartman, L. Lowe, J. Osterhammel, J.-F. Schaub, G. Spivak, E. Viveiros de Castro). S/U or letter grading.

**251. Literatures and Cultures of Maghreb (4)** (Same as Arabic M255.) Seminar, three hours. Limited to graduate students. Examination of traditionally diverse literatures of Maghreb in their multiple and competing contexts of language and gender politics, religious and cultural formations, Pan-Arabism and postcolonial nationhood, Third-Worldism and economic development, modernity and globalization, immigration and citizenship, soccer industry and Rai music, mass media and Star Academy Maghreb, and more. Readings of literatures in English and in English translations from different Maghrebian languages (particularly Arabic and French) in conjunction with theories of lan-

guage and linguistic pluralism, cultural translation, deconstruction, and host of other relevant theories of gender, globalization, and postcolonial cultural studies. S/U or letter grading.

**C252. Symbolism and Decadence (5)** Seminar, four hours. Preparation: reading knowledge of French. Study of symbolist and decadent movements in 19th- and 20th-century English and French poetry and prose, including authors such as Baudelaire, Rimbaud, Verlaine, Mallarmé, Wilde, Yeats, and Eliot. May be concurrently scheduled with course C152. Graduate students required to prepare papers based on texts read in original languages and may meet as group one additional hour each week. S/U or letter grading.

**C253. Post-Symbolist Poetry and Poetics (5)** Seminar, four hours. Study of specific poets and poetics related to them during first half of 20th century. Texts may include poets such as W.B. Yeats, Ezra Pound, T.S. Eliot, Paul Valéry, R.M. Rilke, Gunnar Ekelöf, and Wallace Stevens. May be concurrently scheduled with course C153. Graduate students may meet as group one additional hour each week. S/U or letter grading.

**C256. Fantastic Fictions (4)** Seminar, three hours. Time and again in modern literature, corpses become conduits or catalysts for revelation. What are ghosts that fiction frequently cannot put to rest, and what is their connection to national history or nation language or narrative? Readings from James Joyce, John Banville, Henry James, Toni Morrison, Adolfo Bioy Casares, Juan Carlos Onetti, Juan Rulfo, and Carlos Fuentes, with films by Alejandro Amenabar, Andrei Tarkovsky, and Kenji Mizoguchi. May be concurrently scheduled with course C156. Graduate students have additional meetings and theoretical readings by Benjamin, Freud, Barthes, Derrida, Rabate, Rickels, and Caruth. S/U or letter grading.

**C260. Literature and Visual Arts (4)** Lecture, three hours. Knowledge of art history valuable but not required. Assuming that literature and visual arts are in some degree expressions of cultural and philosophical patterns of eras, study of relationships between writers and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between plastic and verbal arts in comparative study. May be repeated for credit with instructor and/or topic change. May be concurrently scheduled with course C160. Graduate students required to read works in original languages. S/U or letter grading.

**C261. Fiction and History (4)** Seminar, three hours. Analysis of use of historical events, situations, and characters in literary works of Renaissance and/or modern period. Texts and individual assignments range from Renaissance historical narratives (Italian humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendhal, Verga, Tomasi di Lampedusa, Carpentier, and Kundera. Use of fictional methods by historians. Emphasis on how aesthetic, ideological, and political factors influence authors' choice and use of historical material. May be concurrently scheduled with course C161. Graduate students required to prepare papers based on texts read in original languages. S/U or letter grading.

**C263. Crisis of Consciousness in Modern Literature (5)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of modern European and American works that are concerned both in subject matter and artistic methods with growing self-consciousness of human beings and their society, with focus on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C163. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

**C264. Modern European Novel (5)** Seminar, three hours. Preparation: reading knowledge of at least one appropriate foreign language. Study of modern European novel's development from 19th to 21st century. Use of authors such as Hardy, Strindberg, Lagerkvist, Gide, Proust, Mann, Joyce, Kafka, Woolf, Nabokov, Grass, Christa Wolf, and Enquist to focus on development of themes such as shifting authority, gender conflicts, change versus stability, formal experimentation, and self-consciousness in narrative. May be concurrently scheduled with course C164. Graduate students required to prepare papers based on texts read in original languages whenever possible and to meet one additional hour each week. S/U or letter grading.

**266. Writing and Photographic Image (4)** Seminar, three hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Investigation of intertextual relations between writing and photography in American and European contexts. Study rests on premise that photograph enters public domain framed by writing and discourse and that, in turn, some forms of writing are framed by photographic modes of representation. S/U or letter grading.

**267. Comparative Arab Studies (5)** Seminar, three hours. Limited to graduate students. Investigation of ways in which Arab *littérateurs*, artists, and intellectuals have perseveringly sought to imagine and construct viable structures of cultural empowerment on pyre of political project of Arab nationalism and in growing response to globalization and consolidation of Western colonial and

imperial ideologies in Arab world. Particular attention to technical and experimental modes of expression through which Arab artists working in different genres have engaged with some persistent and recurrent questions related to their mission, vocation, and commitment (iltizam) to fundamental concerns of Arab world, to responsible mimetic urgency, and to general uses/potencies of rhetoric and poetics within contexts of profound asymmetries of power, temporalities, and actualities. S/U or letter grading.

**CM270. Alternate Traditions: In Search of Female Voices in Contemporary Literature (5)** (Same as Gender Studies CM270.) Seminar, four hours. Designed for graduate students. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM170. S/U or letter grading.

**271. Imaginary Women (4)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Examination of archetypal female figures in classical/traditional literatures and their reincarnations in modern African American, Anglo-American, Asian American, European, Native American, and Spanish-American literatures. Particular emphasis on position of women in cultures and ideology of authors. S/U or letter grading.

**C272. Postmodern Novel (4)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of postmodern novel as it developed out of modernism. Postmodernism defined in three different ways—philosophically, scientifically, and economically. Emphasis on relationship of recent novels to theories of structuralism and poststructuralism. Readings include authors such as Borges, Beckett, Nabokov, Pynchon, Fuentes, Grass, Böll, and Calvino. Concurrently scheduled with course C172. Graduate students required to meet as group one additional hour each week. S/U or letter grading.

**274. Theorizing Third World (4)** (Same as Asian American Studies M261.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

**275. Nationalism and Immigration Today (4)** Seminar, three hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Literary and social discourses on issues of nationalism, immigration, and politics of identity in our postcolonial era, with consideration of broad range of texts (aesthetic representations, theoretical reflections, and legal documents). S/U or letter grading.

**276. Reading Modern Bodies (4)** (Same as Japanese M276.) Seminar, three hours. Designed for graduate students. Exploration of construction of human body through various modern technologies and discourses, including those of disease, diet, race, gender, and sexuality. Examination of texts from variety of locales, with particular emphasis on Japan. S/U or letter grading.

**277. Caribbean Literature from Negritude to Diaspora (4)** Seminar, three hours. Historical approach to modern Anglophone and Francophone Caribbean literature, retracing search for cultural identity, beginning with negritude movement's claim to Africa as expressed in Aimé Césaire's classic poem *Cahier d'un retour au pays natal* and ending with consideration of dispersion of identities in work of writers and intellectuals who contend with problem of diasporic Caribbean culture. S/U or letter grading.

**C278. India Ink: Literature and Culture of Modern South Asia (5)** Seminar, three hours. Survey of significant issues in history of 20th-century Indian literature and culture. Great works of modern Indian culture by such figures as Rabindranath Tagore, Satyajit Ray, Faiz Ahmed Faiz, and U.R. Anantha Murthy, including novels, short stories, poetry, films, music, and works in cultural criticism and historical scholarship. Central and defining issue for 20th-century Indian culture is experience of British colonial rule and massive cultural and material changes that accompanied it. Exploration of manner in which literature and culture have developed in interaction with powerful social forces, such as struggle for national independence from Britain under leaders like Mahatma Gandhi and expansion of Indian diaspora. Concurrently scheduled with course C178. S/U grading.

**279. Subaltern Studies: Colonial Histories and Cultural Critique (5)** Seminar, three hours. Examination of certain links between practice of cultural criticism and problems in historiography of colonial and postcolonial societies. Use of key texts by members of Subaltern Studies collective of Indian historians to explore some central issues arising from this relationship. What kind of interdisciplinary space is produced by dialog of history and literary and cultural theory? Attention to literary texts to practice such interdisciplinary criticism. Nature of modernity in colonial setting. What is nature of bourgeoisie in colonial society? What kind of modernization does it seek? What is relationship of modern metropolitan bourgeoisie to indigenous one? S/U or letter grading.

**280. Latin American Literature in Comparative Contexts (4)** Seminar, three hours. Preparation: reading knowledge of one foreign language. In-depth study of one topic of Latin American literature in comparative context. May be repeated for credit. S/U or letter grading.

**281. Studies in Contemporary Spanish-American Literature (4)** (Same as Spanish M280B.) Seminar, three hours. Preparation: reading knowledge of one foreign language. In-depth study of topic of Latin American literature in comparative context. May be repeated for credit. S/U or letter grading.

**284. Theories of Translation (4)** Seminar, three hours. Examination of various approaches to concept of translation and to its significance for literary studies. Readings include authors such as Matthew Arnold, Walter Benjamin, George Steiner, and Susan Bassnett. S/U or letter grading.

**285. Translation Workshop (4)** Seminar, three hours. Preparation: solid reading knowledge of at least one foreign language. Open to qualified undergraduates with proper language preparation. Introduction to principles of literary translation heuristically, that is, on basis of texts participating students translate, and presentation of student work for discussion. Opportunity for students to determine whether they have desire and talent to pursue literary translation as part of their professional lives. S/U or letter grading.

**286. Workshop: Social Sciences Translation (4)** Seminar, three hours; tutorial, one hour. Preparation: solid reading knowledge of at least one foreign language. Designed for graduate social sciences students. Techniques students need to render scholarly texts in their fields from language they use in their research into English and to advance their knowledge of language to stage where they can use it more effectively in all aspects of their research, as well as take advantage of translation techniques they have learned. S/U or letter grading.

**C287. Reading across Culture (5)** Seminar, three hours. What is it we do when we try to understand words, habits, gestures, and beliefs not our own? Do we understand something foreign to us by immersing ourselves in it or by standing apart? Does ability to understand something foreign imply taking universal standpoint? Can we make judgments about beliefs other than our own? Questions of cultural interpretation have long history in both Western and non-Western cultures. Discussion of history of questions about cross-cultural interpretation and comparative interpretation of cultures in both comparative literature and cultural anthropology. Reading of some very complex and influential works by such writers as Claude Lévi-Strauss, Amitav Ghosh, James Clifford, Edward Said, Gayatri Spivak, and Erich Auerbach. Concurrently scheduled with course C187. S/U or letter grading.

**288. Modern Arab Thought (4)** (Same as Arabic M288.) Seminar, three hours. While much has been written and said about resurgence and spread of political Islam after collapse of ideology of secular nationalism and failure of Arab left to apprehend exigencies of postrevolutionary/postcolonial moment, little has been devoted to less sensational topic of modern Arab thought despite unmistakable proliferation of critical output produced by Arab thinkers and artists in aftermath of 1967. Course addresses and redresses this glaring imbalance by considering new cultural material—literary, critical, philosophical, artistic, and journalistic—produced before and after al-Nahda but mostly before and after 1967 and fosters insightful approaches to unlikely coexistence in Arab contemporaneity of ever-deepening and generalized crisis and of steady and consolidated development (if not effervescence) of cultural and artistic production. S/U or letter grading.

**289. Theory of Film and Literature (5)** Seminar, three hours; film screening, two hours. Study of redefinition and aims of theories of film and literature. Approaches vary by instructor (e.g., postcoloniality, psychoanalysis, semiotics, transnationalism, gender theory). S/U or letter grading.

**290. Contemporary Theories of Criticism (4)** Seminar, three hours. Requisite: course 200A. Advanced course in theory of literature focusing on structuralist, psychoanalytic, and Marxist approaches. S/U or letter grading.

**291. Problems in Theory of Literature (4)** Seminar, three hours. Preparation: reading knowledge of French or German. Requisite: course 290. Study of specific topics in theory of literature for advanced students in criticism and literary theory. May be repeated for credit. S/U or letter grading.

**292. Theories of Empire (4)** Seminar, three hours. History of theorizations of modern imperialism and colonialism since relevant writings of Karl Marx and Friedrich Engels. Examination of number of landmark theories of empire and consideration of whether or not they may be said to constitute coherent tradition or line of theoretical development. Question of resistance to imperial rule and role it plays in these theoretical accounts. S/U or letter grading.

**299. Aesthetics and Literature (4)** Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of literary theory through exploration of approaches to literature by philosophers grounded on analytic tradition. Careful attention to concepts of truth, meaning, expression, representation, metaphor, fiction, and literature. Letter grading.

**495. Preparation for Teaching Literature and Composition (4)** Seminar, three hours. Seminar on problems and methods of presenting literary texts as exemplary materials in teaching of composition. Deals with theory and classroom practice and involves individual counseling and faculty evaluation of teaching assistants' performance. May not be applied toward MA course requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. Limited to graduate comparative literature students. Necessary for students in comparative literature who need additional individual study and research. May be repeated for credit. S/U or letter grading.

**596X. Directed Individual Study (2 to 4)** Tutorial, to be arranged. Preparation for foreign language examination. S/U grading.

**597. Preparation for MA and PhD Examinations. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. Preparation for MA comprehensive examination or PhD qualifying examinations. May be repeated for credit. S/U grading.

**599. Research for PhD Dissertation (2 to 12)** Tutorial, to be arranged. Limited to PhD students. Research for and preparation of PhD dissertation. May be repeated for credit. S/U grading.

# Computational and Systems Biology

## Computational and Systems Biology Courses

### Lower Division

**10. Preparation for Research in Computational Biology (3)** Lecture, two and one half hours. Provides students with basic understanding of several computational tools used in molecular biology research. Focus on practical application of these tools rather than deep theoretical understanding. Creates more inclusive and accessible experience for learners. Students are introduced to computational tools for carrying out research in computational biology, including basic statistics, Python, R, and UNIX. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**32. Essential Calculus for Mathematical Biologists (4)** (Same as Mathematics M32T and Life Sciences M32.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 30A, 30B. Not open to students with credit for Mathematics 31A, 31B, 32A, or 32B. Designed for life sciences students. Methods and results of single and multivariable calculus essential for quantitative training in biology. Limits, differentiation (single and several variables), optimization, integration and methods of integration, Taylor polynomials and applications to approximation, Taylor and other power series, vector valued functions, gradients, and Lagrange multipliers. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Data Science and Statistics for Life Scientists (4)** Lecture, two hours; laboratory, two hours. Requisites: Computer Science 31 or Program in Computing 10A; Life Sciences 30A and 30B, or Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Life Sciences 40 or Psychology 100A or Statistics 10 or 13. Modern statistics and data science study that builds competency in computational data modeling and analysis. Designed for Computational and Systems Biology majors. Interdisciplinary topics integrate data-driven statistical and computational modeling, and resampling methods for understanding and modeling data. Key topics include advanced data visualization, simple linear regression, clustering, classification, and dimensionality reduction techniques, the same principles and techniques that are the building blocks of machine learning. Study is modular, with opportunities for peer collaboration and proposal writing components. Acquired knowledge and skills may immediately be applied in research or industry settings. P/NP or letter grading.

**130. Fundamentals of Digital Imaging and Image Processing (5)** (Same as Molecular, Cell, and Developmental Biology M130.) Lecture, three hours; laboratory, two hours. Requisites: Life Sciences 7A, 7B, 7C, and Life Sciences 30A, 30B, and 40 or Statistics 13, or Mathematics 3A, 3B, and 3C, or Mathematics 31A, 31B, and 32A or 33A. Digital imaging has become integral tool to our everyday lives and to nearly every field of life sciences. Quantitative approach to learning about basic properties of digital signals and surveying fundamental methods for processing and analyzing images. Letter grading.

**150. Biological Modeling: Mathematical and Computational Approaches (5)**

(Same as Ecology and Evolutionary Biology M159.) Lecture, four hours; laboratory, three hours. Requisites: Life Sciences 7A, 7B, 7C, Mathematics 33A and 33B, with grades of C or better. Recommended Requisites: Physics 1A, 1B, and 1C, or 5A, 5B, and 5C, with grades of C or better. Students learn how to translate their biological knowledge and intuition into mathematical equations and computer simulations, and how to interpret and glean biological insights from quantitative results and predictions. Review and integration of core mathematical and computational approaches in novel ways. Students gain experience translating and intuition about systems through many examples across range of biological levels, such as predator-prey, disease transmission, cancer initiation, cell migration, neural systems, vascular networks, sleep, drug interactions, gene expression, and more. Students learn how to manipulate data, basics of coding, and how to instantiate their mathematical models and biological intuition through numerical solutions and simulations. Letter grading.

**175. Stochastic Processes in Biochemical Systems (4)** (Same as Chemistry M186.) Lecture, three hours. Requisites: Life Sciences 1, 2, 3, and 4, or 7A, 7B, and 7C, Mathematics 33B, Electrical and Computer Engineering 131A or Mathematics 170A or Statistics 100A. Covers random and stochastic processes in play in biochemical systems, including ion channels, cytoskeleton, cell migration and mitosis, gene expression networks, and signal transduction. Covers mathematical tools such as continuous and discrete Markov processes, first passage, time escape problems, statistical mechanics, and information theory. Letter grading.

**178. Quantitative Regulatory Biology and Signal Transduction (4)** (Same as Microbiology M178 and Physiological Science M178.) Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 7A, 7B, 7C, 30A, 30B. Introduction to key biological regulatory circuit motifs and systems biology concepts that are critical to understanding how cellular responses are controlled. Letter grading.

**184. Introduction to Computational and Systems Biology (2)** (Same as Bioengineering M184 and Computer Science M184.) Lecture, two hours; outside study, four hours. Enforced requisites: one course from Civil Engineering M20, Computer Science 31, Mechanical and Aerospace Engineering M20, or Program in Computing 10A; and Life Sciences 30B or Mathematics 3B or 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

**185. Thesis Research Opportunities in Computational and Systems Biology (4)** Lecture, two hours; discussion, two hours. Requisites: course M184, Life Sciences 7C, Mathematics 33A, 33B. Introduction to interdisciplinary laboratory research methods and research opportunities in computational and systems biology to prepare and initiate students for active engagement in research. Presentation of potential projects by faculty members and student visits to individual laboratories and participation in ongoing projects. P/NP or letter grading.

**186. Computational Systems Biology: Modeling and Simulation of Biological Systems (5)** (Same as Bioengineering CM186, Computer Science CM186, and Ecology and Evolutionary Biology M178.) Lecture, four hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 30A, 30B, Mathematics 32A or M32T, 33A, and 33B; or Mathematics 31A, 31B, 32A or M32T, 33A, and 33B. Dynamic biosystem modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Intermediate linear and nonlinear control system, multicompartmental, epidemiological, pharmacokinetic, and other biomodeling methods applied to life sciences problems at molecular, cellular, organ, and population levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into dynamical mathematical models, and implementing them for simulation, quantification, and analysis. Numerical simulation, optimization, and parameter identifiability and search algorithms, with model discrimination and analysis and software exercises in PC laboratory assignments. Letter grading.

**187. Research Communication in Computational and Systems Biology (4)**

(Same as Bioengineering CM187 and Computer Science CM187.) Lecture, four hours; outside study, eight hours. Requisites: course M150 or M186 or Computer Science M182; and research experience (course 199, Bioengineering, Computer Science 199, or equivalent). Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral

presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Community or Corporate Internships in Computational and Systems Biology (4)** Tutorial, eight hours. Limited to juniors/seniors. Supervised internship under guidance of faculty mentor. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. Culminating report/project required. May be repeated for credit. A maximum of 4 units of 195 can be applied toward major. Individual contract required. P/NP grading.

**198A. Honors Research in Computational and Systems Biology (4)** Tutorial, 12 hours. Requisite: course M150. Limited to Computational and Systems Biology students. Supervised individual research involving extensive reading and development of honors thesis or comprehensive project under guidance of faculty mentor. Maximum of 8 units of courses 198A and 198B may be applied toward major. Individual contract required. In Progress grading (credit to be given on completion of course 198B).

**198B. Honors Research in Computational and Systems Biology (4)** Tutorial, 12 hours. Requisite: course 198A. Continued reading and research culminating in honors thesis under direct supervision of faculty member. Maximum of 8 units of courses 198A and 198B may be applied toward major. Individual contact required. Letter grading.

**199. Directed Research in Computational and Systems Biology (4)** Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating report/thesis required. May be repeated for credit. Four units may be applied toward major requirements. Individual contract required. Letter grading.



# Computational Medicine

## Biomathematics Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**170A. Introductory Biomathematics for Medical Investigators (4)** Lecture, three hours; discussion, one hour. Intensive elementary statistics course emphasizing design and applications to observational studies and experiments/clinical trials. Statistical topics include study design, descriptive statistics, elementary probability and distributions, confidence intervals and hypothesis testing, sample size and power, linear regression and correlation, analysis of variance, nonparametric statistics. Applications to biomedical literature and design of clinical trials. Letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190HA. Honors Research in Biomathematics (4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual research in some aspect of biomathematics designed to acquaint students in depth with mathematical models and computer applications in biology. Must be taken for at least two terms and for total of at least 8 units. Thesis required. P/NP or letter grading.

**190HB. Honors Research in Biomathematics (4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual research in some aspect of biomathematics designed to acquaint students in depth with mathematical models and computer applications in biology. Must be taken for at least two terms and for total of at least 8 units. Thesis required. P/NP or letter grading.

**197. Individual Studies in Biomathematics. (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Biomathematics. (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**200. Research Frontiers in Biomathematics (2)** Lecture, two hours. Series of presentations by faculty members on research frontiers in biomathematics. S/U grading.

**200B. Frontiers and Methods in Mathematical Systems (4)** Lecture/seminar, four hours. Introduction to cutting-edge research in mathematical biology. Imparts critical thinking through critique of research. Trains students in scientific writing and presentation skills. Short writing assignments, figure preparation, and slide development. Letter grading.

**201. Deterministic Models in Biology (4)** Lecture, three hours; laboratory, three hours. Preparation: knowledge of linear algebra and differential equations. Examination of conditions under which deterministic approaches can be employed and conditions where they may be expected to fail. Topics include compartmental analysis, enzyme kinetics, physiological control systems, and cellular/animal population models. S/U or letter grading.

**202. Biological Systems: Structure, Function, Evolution (4)** Lecture, four hours. Preparation: knowledge of calculus, differential equations, and partial differential equations. Introduction to concepts, equations, and approximations that describe structure and function of biological systems, evolutionary principles, and network design and dynamics. Topics include cancer initiation and progression, gene expression, epistasis, response to fluctuating environments, network structure, and functional traits. S/U or letter grading.

**203. Stochastic Models in Biology (4)** (Same as Human Genetics M203.) Lecture, four hours. Requisite: Mathematics 170A or equivalent experience in probability. Mathematical description of biological relationships, with particular attention to areas where conditions for deterministic models are inadequate. Examples of stochastic models from genetics, physiology, ecology, and variety of other biological and medical disciplines. S/U or letter grading.

**204. Biomedical Data Analysis (4)** Lecture, four hours. Requisite: at least one course in probability or statistics that included basic probability, elementary distributions, hypothesis testing, and confidence intervals; knowledge of elementary calculus. Familiarity with elementary matrix algebra and previous programming experience are strongly preferred. Modern scientific research and quality and quantity of data have been greatly affected by rapid expansion of statistical computing software. Problem-oriented study of latest methods in applied statistical data analysis and its use arising in laboratory and clinical research. S/U or letter grading.

**205. Top Computational Algorithms (4)** Lecture, four hours. Recommended preparation: undergraduate calculus, linear algebra, probability. Overview of most important and beautiful algorithms in numerical analysis, statistics, bioinformatics, and computer science. Emphasis on mathematical derivation, practical complexity analysis, significant applications, and coding in Julia programming language. Big data applications particularly stressed. Letter grading.

**206. Introduction to Mathematical Oncology (4)** Lecture, four hours; computer laboratory, two hours. Preparation: ordinary partial differential equations, one computer programming course. Deterministic and stochastic modeling of cell metabolism, colony growth, and responses to radio-, chemo-, and immunotherapeutic agents applied to carcinogenesis, therapy, emergence of resistance to therapy. Simulation, optimization methods introduced. Current literature review. S/U or letter grading.

**207A. Theoretical Genetic Modeling (4)** (Same as Biostatistics M272 and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

**207B. Applied Genetic Modeling (4)** (Same as Biostatistics M237 and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 200B, 202B (may be taken concurrently) or equivalent coursework or consent of instructor. Covers basic genetic concepts (prior knowledge of human genetics not required). Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

**208. Geometric Methods in Medical Imaging (4)** Lecture, four hours. Recommended preparation: undergraduate calculus, linear algebra, probability. Overview of mathematical and computational techniques to study geometric objects underlying medical images. Includes curves, surfaces, sizes, shapes, and diffusion tensors that describe cells, tissues, and organs. S/U or letter grading.

**209. Mechanisms and Modeling in Bioanalytical Assays (4)** Lecture, three hours. Preparation: knowledge of basic physical chemistry and ordinary differential equations. Recommended requisite: course 201. Review of basic physical mechanisms and mathematical analyses used in common bioanalytical assays. Topics include chromatography, electrophoresis, blotting, DNA sequencing, PCR, SELEX, ChIP-sequencing, FACS, FRAP, and FISH. S/U or letter grading.

**210. Optimization Methods in Biology (4)** Lecture, four hours. Preparation: undergraduate mathematical analysis and linear algebra; familiarity with programming language such as Fortran or C. Modern computational biology relies heavily on finite-dimensional optimization. Survey of theory and numerical methods for discrete and continuous optimization, with applications from genetics, medical imaging, pharmacokinetics, and statistics. S/U or letter grading.

**211. Mathematical and Statistical Phylogenetics (4)** (Same as Biostatistics M239 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Preparation: undergraduate course in statistics and probability. Theoretical models in molecular evolution focusing on phylogenetic techniques. Topics

include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography and coalescent approaches. Examples provided from evolutionary biology and evolutionary medicine, with unique focus on implications for human disease processes. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

**212. Evolutionary Ecology (4)** (Same as Ecology and Evolutionary Biology M232.) Lecture, two and one half hours. Requisite: Ecology and Evolutionary Biology M200A or 200B, or equivalent. Concepts and topics include fundamental concepts of evolutionary ecology, including life history theory, quantitative genetics and phenotypic evolution, and advances made in field in last decade. May be repeated for credit. Letter grading.

**213. Modeling Vascular Networks (4)** Lecture, four hours. Recommended preparation: calculus, differential equations, complex analysis, elementary knowledge of partial differential equations. Introduction to equations that describe fluid flow dynamics and branching, and hierarchical networks to provide survey of models for structure and flow of vascular systems. Vascular systems are nearly ubiquitous in nature, occurring across animals, plants, and other organisms. Coverage of applications to tumor growth and angiogenesis, sleep, allometric scaling, and other phenomena. S/U or letter grading.

**232. Statistical Analysis of Incomplete Data (4)** (Same as Biostatistics M232.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 200C, 202B or equivalent. Sources of incomplete data, recognizing familiar methods as solutions to missing-data problems, missing-data mechanisms, weighting and imputation strategies, model-based and design-based inference, likelihood-based and Bayesian methods, statistical computing strategies, multivariate models for diverse data types, nonignorable models, review of available statistical software. Emphasis on incorporating incomplete-data perspective into broader statistical-science framework. S/U or letter grading.

**234. Applied Bayesian Inference (4)** (Same as Biostatistics M234.) Lecture, three hours; laboratory, one hour. Requisite: Biostatistics 200B or another substantial regression course. Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

**243. Condensed Matter Physics of Cells (4)** (Same as Physics M243L.) Seminar, four hours. Designed for graduate students. Basic paradigms of condensed matter physics and applications to biophysical modeling. S/U or letter grading.

**257. Computational Methods for Biostatistical Research (4)** (Same as Biostatistics M257.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 250A or Statistics 100C, Mathematics 115A. Preparation for quantitative research in statistics and data sciences. Numerical analysis and hands-on computing techniques for handling big data. Numerical analysis topics include computer arithmetic, solving linear equations, Cholesky factorization, QR factorization, regression computations, eigenvalue problems, iterative solvers, numerical optimization, and design and analysis of statistical simulation experiments. Computing techniques include basics of R programming, reproducible research using R and RStudio, collaborative research, parallel computing, and cloud computing. No prior knowledge of R assumed. S/U or letter grading.

**259. Controversies in Clinical Trials (2)** Lecture, one hour; discussion, one hour. Preparation: completion of professional health sciences or MD degree. Required of all MS in Clinical Research students. Discussion and analysis of eight published and well-known trials with students, one invited clinical faculty member, and course director. Development of critical ability to evaluate trial design and pitfalls. S/U or letter grading.

**260A. Methodology in Clinical Research I (4)** (Same as Medicine M260A.) Lecture, four hours. Recommended preparation: MD, PhD, or dental degree. Requisites: courses 170A, 265A. Course M260A is requisite to M260B. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

**260B. Methodology in Clinical Research II (4)** (Same as Medicine M260B.) Lecture, four hours. Recommended preparation: MD, PhD, or dental degree. Requisites: courses 170A, M260A, 265A. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

**260C. Methodology in Clinical Research III (4)** (Same as Medicine M260C.) Discussion, four hours. Recommended preparation: MD, PhD, or dental degree. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

**261. Responsible Conduct of Research Involving Humans (2)** (Same as Medicine M261.) Lecture, two hours; discussion, two hours. Preparation: completion of one basic course in protection of human research subjects through Collaborative Institutional Training Initiative. Discussion of current issues in responsible conduct of clinical research, including reporting of research, basis for authorship, issues in genetic research, principles and practice of research on humans, conflicts of interest, Institutional Review Board (IRB), and related topics. S/U or letter grading.

**262. Communication of Science (2)** (Same as Psychiatry M230.) Lecture, two hours; discussion, one hour. Presentation of various types of scientific writings and their good practice. Details of writing specific articles: methods, results, discussion. Writing of review article. Grant submissions: aims, background, results, design. Role of appendices. Communication with lay public. S/U or letter grading.

**263. Clinical Pharmacology (2)** (Same as Medicine M263 and Psychiatry M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (MD, DDS, DNSc, or PhD). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

**264. Applied Data Collection and Analysis (4)** Lecture, four hours. Presentation of research project development, including protocol development, data collection, quality control, clinical/electronic health record (EHR) data, structuring data for analysis, and data archival. Lectures, in-class practicums using actual studies and datasets, and student presentations. Letter grading.

**265A. Data Analysis Strategies I (4)** Lecture, two hours; laboratory, two hours. Preparation: MD or PhD degree. Requisite: course 170A. Designed to provide students with hands-on experience developing and testing hypotheses using various types of databases. Topics include developing testable hypothesis, data management, and analysis strategies and written presentation of findings. Experience with full process of hypothesis generation, operationalization of variables, selection of analysis techniques, and presentation of findings so students are better prepared to complete data analysis, interpretation of results, and written presentation of their findings (e.g., for master's thesis and subsequent articles). Students encouraged to provide their own data. Databases provided for use in completing exercises for those without available data. Letter grading.

**265B. Data Analysis Strategies II (2)** Lecture, one hour; laboratory, one hour. Requisite: course 265A. Continuation of course 265A; use of SAS computer language. Letter grading.

**266A. Applied Regression Analysis in Medical Sciences (4)** Lecture, three hours; laboratory, one hour. Requisite: course 170A. Proficiency in applied regression analysis, with focus on interpretation of results and performing computation. Primary topics include simple linear regression, multiple regression, regression model selection, analysis of variance, logistic regression, and survival analysis. Letter grading.

**266B. Advanced Biostatistics (4)** Lecture, three hours; discussion, one hour. Requisite: course 266A. Continuation of course 266A. Some traditional multivariate methods, such as principle components, factor analysis, cluster analysis, and more contemporary methods, including recursive partitioning and missing data. Multilevel and longitudinal analysis. Letter grading.

**270. Optimal Parameter Estimation and Experiment Design for Biomedical Systems (4)** (Same as Bioengineering M296B, Computer Science M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course 220 or Bioengineering CM286 or M296A. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

**271. Statistical Methods in Computational Biology (4)** (Same as Bioinformatics M223 and Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: Bioinformatics M221 or Statistics 100A or 200A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

**280. Statistical Computing (4)** (Same as Biostatistics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics 100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

**281. Survival Analysis (4)** (Same as Biostatistics M215). Lecture, three hours; discussion, one hour. Requisite: Biostatistics 202B or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

**282. Longitudinal Data (4)** (Same as Biostatistics M236.) Lecture, three hours; laboratory, one hour. Requisite: Biostatistics 200B or another substantial regression course. Analysis of continuous responses for which multivariate normal model may be assumed. Students learn how to think about longitudinal data, plot data, and how to specify mean and variance of longitudinal response. Advanced topics include introductions to clustered, multivariate, and discrete longitudinal data. S/U or letter grading.

**284. Methodology of Clinical Trials (4)** (Same as Biostatistics M238.) Lecture, three hours; discussion, one hour. Requisite: Biostatistics 200B. Introductory material on design and analysis of clinical trials, including adaptive methods for early and late randomized trials. S/U or letter grading.

**285. Introduction to High-Throughput Data Analysis (4)** Seminar, three hours. Requisites: courses M260A, M260B. Introduction to high-throughput data analysis, including DNA microarray technologies and next-generation sequencing technology. Presentation of statistical methods and software for handling complex data produced by experiments using these technologies. Some hands-on training on data analysis provided. S/U or letter grading.

**299. Special Topics in Clinical Research. (2 to 6)** Seminar, three hours. Requisites: courses M260A, M260B. Advanced study and analysis of current topics in clinical research. Discussion of current research and literature in research specialty of faculty member teaching course. Content varies from term to term and may include lectures from visiting scientists. May be repeated for credit with consent of instructor. S/U or letter grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research in Biomathematics. (2 to 12)** Tutorial, to be arranged. Individual study on topics not yet covered by offerings of department. May be repeated for credit with topic change. S/U or letter grading.

**597. Preparation for MS or PhD Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. Individual study. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 12)** Tutorial, to be arranged. S/U grading.

## Data Science in Biomedicine Courses

### Graduate

**200. Foundations of Data Science (4)** Lecture, four hours; discussion, two hours. Preparation: familiarity with programming and algorithms, probability, statistics, linear algebra. Study offers background in mathematical and engineering foundations that are building blocks of data science. Topics include linear algebra, probability, and statistics. Overview of science software engineering and reproducibility fundamentals including working on a compute cluster, pipeline development, virtual notebooks, version control. Letter grading.

**205. Machine Learning Applications in Biomedicine (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Introduction to machine learning analysis of biomedical data, with focus on formulating interdisciplinary problems as computational problems and then solving those problems using machine learning techniques and computational interdisciplinary research in genetics. Fundamentals of machine learning and applications to genetics and health records. Letter grading.

**206. Advanced Machine Learning Applications in Biomedicine (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Statistical models for analysis of biomedical data that captures the structure of the data and accounts for the constraints. Topics include Bayesian models, probabilistic graphical models, deep learning, time series, dynamical systems, stochastic processes, scalable inference (gradient descent, stochastic gradient descent, expectation-maximization, Markov chain Monte Carlo, variational inference), privacy-preserving inference (differential privacy, inference over encrypted data), interpretable machine learning, and fairness and bias. Letter grading.

**207. Data Science for Medical Imaging (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Overview of medical image modalities and 3D visualization, classical image processing (histogram analysis and filtering), modern deep learning techniques (convolutional networks), image alignment, and statistical analysis of populations. Letter grading.

**208. Recent Research in Machine Learning in Medicine (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Overview of recent research in machine learning applied to medicine. Covers recent papers utilizing data science approaches to analyze large amounts of medical data. Topics include analysis of medical imaging data, electronic health records, and waveforms. Students receive instruction on how to read recent research papers, and present these papers in class. Letter grading.

**209. Recent Research in Data Science in Genomic Medicine (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Overview of recent research in data science applied to genomic medicine. Covers recent papers that use data science approaches to analyze large amounts of genomic data along with medical data with the goal of improving patient care. Topics include analysis of genomic data to diagnose rare diseases, estimation and utilization of polygenic risk scores in electronic medical records, and integrating novel types of genomic data into clinical care. Students receive instruction on how to read recent research papers, and present these papers in class. Letter grading.

**218. Applied Data Science in Genomics and Biomedicine (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Introduction to computational approaches in bioinformatics, genomics, computational genetics, electronic health records, medical images, and other analysis of biomedical data. Topics include emerging methods and their applications to genomics, epigenomics, population genetics, analysis of health records within medical systems, medical imaging, and genomic technologies. Computational techniques include those from statistics and computer science. Satisfies capstone requirement. Students present their results. Letter grading.

**219. Data Science Algorithms in Biomedicine (4)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Development and application of algorithmic approaches to problems in biomedicine, with focus on formulating interdisciplinary problems as computational problems and then solving these problems using algorithmic techniques. Design, analysis, optimization, and implementation of algorithms. Topics include string algorithms in genomics and scalable machine learning algorithms applied to medical data. Satisfies capstone requirement. Students present their results. Letter grading.

**220. Data Science in Biomedicine Supervised Project. (4 to 8)** Lecture, four hours; discussion, two hours. Requisite: course 200 or equivalent. Hands-on applied analytics project that helps prepare students for a career in data science in biomedicine by testing their ability to solve complex data science problems in real-world settings. Students hone their communication skills and delve deeply into areas of interest beyond the classroom. Satisfies capstone requirement. Letter grading.

# Computer Science

## Bioinformatics, Undergraduate Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Bioinformatics. (2 to 4)** Tutorial, six to 12 hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

## Computer Science Courses

### Lower Division

**1. Freshman Computer Science Seminar (1)** Seminar, one hour. Introduction to department resources and principal topics and key ideas in computer science and computer engineering. Students create critical summaries of seminar talks. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**30. Principles and Practices of Computing (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Designed for students in computer science and related majors who do not have prior programming experience. Precursor course to introductory computer science sequence (courses 31, 32, 33). Teaches students how to use computers as tool for problem solving, creativity, and exploration through design and implementation of computer programs. Key topics are data types including integers, strings, and lists; control structures, including conditionals and loops; and functional decomposition. Letter grading.

**31. Introduction to Computer Science I (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to computer science via theory, applications, and programming. Basic data types, operators and control structures. Input/output. Procedural and data abstraction. Introduction to object-oriented software development. Functions, recursion. Arrays, strings, pointers. Abstract data types, object-oriented programming. Examples and exercises from computer science theory and applications. Letter grading.

**32. Introduction to Computer Science II (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisite: course 31. Object-oriented software development. Abstract data type definition and use. Overloading, inheritance, polymorphism. Object-oriented view of data structures: stacks, queues, lists. Algorithm analysis. Trees, graphs, and associated algorithms. Searching and sorting. Case studies and exercises from computer science applications. Letter grading.

**33. Introduction to Computer Organization (5)** Lecture, four hours; discussion, two hours; outside study, nine hours. Enforced prerequisite: course 32. Introductory course on computer architecture, assembly language, and operating systems fundamentals. Number systems, machine language, and assembly language. Procedure calls, stacks, interrupts, and traps. Assemblers, linkers, and loaders. Operating systems concepts: processes and process management, input/output (I/O) programming, memory management, file systems. Letter grading.

**35L. Software Construction (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 31. Fundamentals of tools and environments for software construction projects, particularly open-source platforms used in upper-division computer science courses. Software practice through collaborative student project. Letter grading.

**51A. Logic Design of Digital Systems (4)** (Same as Electrical and Computer Engineering M16.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to digital systems. Specification and implementation of combinational and sequential systems. Standard logic modules and programmable logic arrays. Specification and implementation of algorithmic systems: data and control sections. Number systems and arithmetic algorithms. Error control codes for digital information. Letter grading.

**97. Variable Topics in Computer Science. (1 to 4)** Lecture, one to four hours; discussion, zero to two hours. Designed for freshmen/sophomores. Variable topics in computer science not covered in regular computer science courses. May be repeated once for credit with topic or instructor change. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**111. Operating Systems Principles (5)** Lecture, four hours; laboratory, two hours; outside study, nine hours. Enforced prerequisites: courses 32, 33, 35L. Introduction to operating systems design and evaluation. Computer software systems performance, robustness, and functionality. Kernel structure, bootstrapping, input/output (I/O) devices and interrupts. Processes and threads; address spaces, memory management, and virtual memory. Scheduling, synchronization. File systems: layout, performance, robustness. Distributed systems: networking, remote procedure call (RPC), asynchronous RPC, distributed file systems, transactions. Protection and security. Exercises involving applications using, and internals of, real-world operating systems. Letter grading.

**112. Modeling Uncertainty in Information Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisites: course 111 and one course from Civil Engineering 110, Electrical Engineering 131A, Mathematics 170A, or Statistics 100A. Designed for juniors/seniors. Probability and stochastic process models as applied in computer science. Basic methodological tools include random variables, conditional probability, expectation and higher moments, Bayes theorem, Markov chains. Applications include probabilistic algorithms, evidential reasoning, analysis of algorithms and data structures, reliability, communication protocol and queueing models. Letter grading.

**117. Computer Networks: Physical Layer (4)** Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Not open to students with credit for course M171L. Introduction to fundamental computer communication concepts underlying and supporting modern networks, with focus on wireless communications and media access layers of network protocol stack. Systems include wireless LANs (IEEE802.11) and ad hoc wireless and personal area networks (e.g., Bluetooth, ZigBee). Experimental project based on mobile radio-equipped devices (smart phones, tablets, etc.) as sensor platforms for personal applications such as wireless health, positioning, and environmental awareness, and experimental laboratory sessions included. Letter grading.

**118. Computer Network Fundamentals (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 111. Designed for juniors/seniors. Introduction to design and performance evaluation of computer networks, including such topics as what protocols are, layered network architecture, Internet protocol architecture, network applications, transport protocols, routing algorithms and protocols, internetworking, congestion control, and link layer protocols including Ethernet and wireless channels. Letter grading.

**119. Fundamentals of Embedded Networked Systems (4)** (Same as Electrical and Computer Engineering M119.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 33; 118 or Electrical and Computer Engineering 132B; one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, 170E, Statistics 100A. Design trade-offs and principles of operation of cyber physical systems such as devices and systems constituting Internet of Things. Topics include signal propagation and modeling, sensing, node architecture and operation, and applications. Letter grading.

**C121. Probabilistic Models in Computational Genomics (4)** (Formerly numbered CM121.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Prior knowledge of biology is not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to probabilistic models in the context of genomics, with emphasis on concepts and inventing new computational and statistical techniques to analyze genomic data. Concurrently scheduled with course C221. Letter grading.

**C122. Algorithms in Computational Genomics (4)** (Formerly numbered CM122.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Civil Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Course C121 is not requisite to C122. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Databases of genomic sequence data are among the largest datasets in all of science. Assembling, indexing, and querying such tremendous datasets is computationally challenging yet critical for many areas of biomedical research. Focus on development of scalable algorithms for analysis of genomic sequence data, with additional focus on formulating biologically relevant problems as computational problems and then solving these problems by developing new algorithms. Concurrently scheduled with course C222. Letter grading.

**C124. Machine Learning Applications in Genetics (4)** (Formerly numbered CM124.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, Mathematics 33A, and one course from Civil Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Prior knowledge of biology is not required. Introduction of main applications of machine learning in genetics. Students are prepared for interdisciplinary research in genetics that involves a major computational and statistical component. Topics include introduction to genetics, identification of genes involved in disease using regression techniques, inference of heritability using linear mixed models, inferring human population history using Markov models, methods for phasing genotype data including expectation maximization, computational optimization methods and methods for dimensionality reduction including principal component analysis (PCA), and genotype-phenotype prediction using machine learning techniques. Concurrently scheduled with course C224. Letter grading.

**130. Software Engineering (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 111, 131. Recommended requisite: Engineering 183EW or 185EW. Structured programming, program specification, program proving, modularity, abstract data types, composite design, software tools, software control systems, program testing, team programming. Letter grading.

**131. Programming Languages (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisites: courses 33, 35L. Basic concepts in design and use of programming languages, including abstraction, modularity, control mechanisms, types, declarations, syntax, and semantics. Study of several different language paradigms, including functional, object-oriented, and logic programming. Letter grading.

**132. Compiler Construction (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 131. Compiler structure; lexical and syntactic analysis; semantic analysis and code generation; theory of parsing. Letter grading.

**133. Parallel and Distributed Computing (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 131, M151B. Distributed memory and shared memory parallel architectures; asynchronous parallel languages: MPI, Maisie; primitives for parallel computation: specification of parallelism, interprocess communication and synchronization; design of parallel programs for scientific computation and distributed systems. Letter grading.

**134. Distributed Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 118. Covers fundamental concepts regarding design and implementation of distributed systems. Topics include synchronization (e.g., clock synchronization, logical clocks, vector clocks), failure recovery (e.g., snapshotting, primary-backup), consistency models (e.g., linearizability, eventual, causal), consensus protocols (e.g., Paxos, Raft), distributed transactions, and lock. Students gain hands-on, practical experience through multiple programming assignments that work through steps of creating fault-tolerant, sharded key/value store. Exploration of how these concepts have manifested in several real-world, large-scale distributed systems used by Internet companies like Google, Facebook, and Amazon. Letter grading.

**136. Introduction to Computer Security (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 118. Introduction to basic concepts of information security necessary for students to understand risks and mitigations associated with protection of systems and data. Topics include security models and architectures, security threats and risk analysis, access control and authentication/authorization, cryptography, network security, secure application design, and ethics and law. Letter grading.

**C137A. Prototyping Programming Languages (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 131. How different programming language paradigms provide dramatically different ways of thinking about computation and offer trade-offs on many dimensions, such as modularity, extensibility, expressiveness, and safety. Concrete exploration of three major programming paradigms—functional, object-oriented, and logic programming—by prototyping implementations of languages in each. Analysis of prototypes to shed light on design and structural properties of each language and paradigm and to allow easy comparison against one another. Hands-on experience implementing new abstractions, both as stand-alone languages and as libraries in existing languages. Concurrently scheduled with course C237A. Letter grading.

**C137B. Programming Language Design (4)** Seminar, four hours; outside study, eight hours. Enforced requisite: course C137A. Study of various programming language designs, from computing history and research literature, that attempt to address problems of software systems that are bloated, buggy, and difficult to maintain and extend despite trend in computing toward ever higher levels of abstraction for programming. Hands-on experience designing, prototyping, and evaluating new languages, language abstractions, and/or programming environments. Concurrently scheduled with course C237B. Letter grading.

**138. Computer System Security (4)** (Same as Electrical and Computer Engineering M117.) Lecture, four hours; laboratory, one hour; outside study, seven hours. Requisite: course 33. Recommended requisite: course 111. Introduction to fundamental knowledge of computer system security. Students gain understanding of exploit techniques; learn to use the security tools; learn to design and implement secure systems; and learn concepts of computer security including software vulnerability analysis and defense, web security, mobile security, and network security. Covers the latest security topics in practice (e.g., cryptocurrency), and in research (e.g., state-of-the-art fuzzing techniques and machine-learning-based security analysis). Students get hands-on experience in analyzing and designing secure systems. Includes course project for cutting-edge security research. Letter grading.

**143. Data Management Systems (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 32 or Program in Computing 10C. Information systems and database systems in enterprises. File organization and secondary storage structures. Relational model and relational database systems. Network, hierarchical, and other models. Query languages. Database design principles. Transactions, concurrency, and recovery. Integrity and authorization. Letter grading.

**144. Web Applications (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 143. Important concepts and theory for building effective and safe Web applications and first-hand experience with basic tools. Topics include basic Web architecture and protocol, XML and XML query language, mapping between XML and relational models, information retrieval model and theory, security and user model, Web services and distributed transactions. Letter grading.

**145. Introduction to Data Mining (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 32. Introduction of basic concepts, algorithms, and techniques of data mining on different types of datasets including vector data, set data, sequence data, text data, and graph data. Hands-on project involving practice of mining useful knowledge from large data sets. Letter grading.

**146. Introduction to Machine Learning (4)** (Same as Electrical and Computer Engineering M146.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C; Civil and Environmental Engineering 110 or Electrical and Computer Engineering 131A or Mathematics 170A or 170E or Statistics 100A; Mathematics 33A. Introduction to breadth of data science. Foundations for modeling data sources, principles of operation of common tools for data analysis, and application of tools and models to data gathering and analysis. Topics include statistical foundations, regression, classification, kernel methods, clustering, expectation maximization, principal component analysis, decision theory, reinforcement learning and deep learning. Letter grading.

**148. Introduction to Data Science (4)** (Same as Electrical and Computer Engineering M148.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 31 or Program in Computing 10A, and 10B, and one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. How to analyze data arising in real world so as to understand corresponding phenomenon. Covers topics in machine learning, data analytics, and statistical modeling classically employed for prediction. Comprehensive, hands-on overview of data science domain by blending theoretical and practical instruction. Data science lifecycle: data selection and cleaning, feature engineering, model selection, and prediction methodologies. Letter grading.

**151B. Computer Systems Architecture (4)** (Same as Electrical and Computer Engineering M116C.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 33, and M51A or Electrical and Computer Engineering M16. Recommended: courses 111, and M152A or Electrical and Computer Engineering M116L. Computer system organization and design, implementation of CPU datapath and control, instruction set design, memory hierarchy (caches, main memory, virtual memory) organization and management, input/output subsystems (bus structures, interrupts, DMA), performance evaluation, pipelined processors. Letter grading.

**152A. Introductory Digital Design Laboratory (2)** (Same as Electrical and Computer Engineering M116L.) Laboratory, four hours; outside study, two hours. Enforced requisite: course M51A or Electrical and Computer Engineering M16. Hands-on design, implementation, and debugging of digital logic circuits, use of computer-aided design tools for schematic capture and simulation, implementation of complex circuits using programmed array logic, design projects. Letter grading.

**152B. Digital Design Project Laboratory (4)** Laboratory, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course M151B or Electrical Engineering M116C. Recommended: Engineering 183EW or 185EW. Limited to seniors. Design and implementation of complex digital subsystems using field-programmable gate arrays (e.g., processors, special-purpose processors, device controllers, and input/output interfaces). Students work in teams to develop and implement designs and to document and give oral presentations of their work. Letter grading.

**161. Fundamentals of Artificial Intelligence (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 180. Introduction to fundamental problem solving and knowledge representation paradigms of artificial intelligence. Introduction to Lisp with regular programming assignments. State-space and problem reduction methods, brute-force and heuristic search, planning techniques, two-player games. Knowledge structures including predicate logic, production systems, semantic nets and primitives, frames, scripts. Special topics in natural language processing, expert systems, vision, and parallel architectures. Letter grading.

**162. Natural Language Processing (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 145 or M146. Recommended requisite: course 35L. Introduction to wide range of natural language processing, tasks, algorithms for effectively solving these problems, and methods of evaluating their performance. Focus on statistical and neural-network learning algorithms that train on text corpora to automatically acquire knowledge needed to perform task. Discussion of general issues and present abstract algorithms. Assignments on theoretical foundations of linguistic phenomena and implementation of algorithms. Implemented versions of some of algorithms are provided in order to give feel for how discussed systems really work, and allow for extensions and experimentation as part of course projects. Letter grading.

**163. Deep Learning for Computer Vision (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: one course from course C124, 145, M146, M148, 161, 162, Electrical and Computer Engineering C147, or 149. Computer vision has been a core field of artificial intelligence, facilitating a wide range of applications from image search to self-driving. The progress of deep learning has greatly advanced the performance of visual tasks like visual recognition and image generation. Study of deep learning approaches for computer vision. Students learn to implement and tune the deep neural networks used in various computer vision, such as visual recognition and image generation. Covers learning algorithms, neural architecture design, and practical skills of training and debugging neural networks. Letter grading.

**168. Computational Methods for Medical Imaging (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, Mathematics 33A, one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, 170E, or Statistics 100A. Theory and practice of image acquisition including angiography, computed tomography (CT), and magnetic resonance (MR). Project-based course covers applied topics in medical imaging including image processing, atlas, predictive modeling, personalized medicine, data driven and machine learning methods. Letter grading.

**170A. Mathematical Modeling and Methods for Computer Science (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisites: course 180, Mathematics 33B. Introduction to methods for modeling and simulation using interactive computing environments. Extensive coverage of methods for numeric and symbolic computation, matrix algebra, statistics, floating point, optimization, and spectral analysis. Emphasis on applications in simulation of physical systems. Letter grading.

**171L. Data Communication Systems Laboratory. (2 to 4)** (Same as Electrical and Computer Engineering M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: course M152A. Limited to seniors. Not open to students with credit for course M117. Interpretation of analog-signaling aspects of digital systems and data communications through experience in using contemporary test instruments to generate and display signals in relevant laboratory setups. Use of oscilloscopes, pulse and function generators, baseband spectrum analyzers, desktop computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

**172. Real-Time Three-Dimensional Animation (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 32. Introduction to handling of geometry, appearance, and motion specifically for real-time virtual environments, both on theoretical and practical levels. Completion of one quality real-time three-dimensional animation by following through from preproduction to postproduction. End products expected to be game demonstrations, storytelling games, or machinima (use of real-time graphics engines to create cinematic productions). Focus on achieving highest quality productions to qualify and submit products to Student Academy Awards competition. Use of Unity Game Engine to make technical decisions to adapt stories to games. Introduction to interaction concepts, enabling students to create low-fidelity real-time three-dimensional animation and to concepts in artificial intelligence, enabling them to refine their interactions to create high-fidelity real-time three-dimensional animation. Letter grading.

**174A. Introduction to Computer Graphics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 32. Basic principles behind modern two- and three-dimensional computer graphics systems, including complete set of steps that modern graphics pipelines use to create realistic images in real time. How to position and manipulate objects in scene using geometric and camera transformations. How to create final image using perspective and orthographic transformations. Basics of modeling primitives such as polygonal models and implicit and parametric surfaces. Basic ideas behind color spaces, illumination models, shading, and texture mapping. Letter grading.

**174B. Introduction to Computer Graphics: Three-Dimensional Photography and Rendering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 174A. State of art in three-dimensional photography and image-based rendering. How to use cameras and light to capture shape and appearance of real objects and scenes. Process provides simple way to acquire three-dimensional models of unparalleled detail and realism. Applications of techniques from entertainment (reverse engineering and postprocessing of movies, generation of realistic synthetic objects and characters) to medicine (modeling of biological structures from imaging data), mixed reality (augmentation of video), and security (visual surveillance). Fundamental analytical tools for modeling and inferring geometric (shape) and photometric (reflectance, illumination) properties of objects and scenes, and for rendering and manipulating novel views. Letter grading.

**C174C. Computer Animation (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 174A. Designed for juniors/seniors. Introduction to computer animation, including basic principles of character modeling, forward and inverse kinematics, forward and inverse dynamics, motion capture animation techniques, physics-based animation of particles and systems, and motor control. Concurrently scheduled with course C274C. Letter grading.

**180. Introduction to Algorithms and Complexity (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: course 32, Mathematics 61. Designed for junior/senior Computer Science majors. Introduction to design and analysis of algorithms. Design techniques: divide-and-conquer, greedy method, dynamic programming; selection of prototypical algorithms; choice of data structures and representations; complexity measures: time, space, upper, lower bounds, asymptotic complexity; NP-completeness. Letter grading.

**181. Theory of Computing (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 180. Designed for junior/senior Computer Science majors. Finite state machines, context-free languages, and pushdown automata. Closure properties and pumping lemmas. Turing machines, undecidability. Introduction to computability. Letter grading.

**182. Dynamic Biosystem Modeling and Simulation Methodology (4)** (Same as Bioengineering M182.) Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, five hours. Requisites: Life Sciences 30A and 30B, or Mathematics 3A and 3B, or 31A and 31B. Recommended requisite or corequisite: Mathematics 3C, 32A, or 32T. For undergraduate students in life, computational, engineering, and mathematical sciences. Active learning approach. Introduction to explicit modeling and simulation of dynamic biological systems. Basic methodology for transforming biology, biochemistry, and physiology into system diagrams, graphs, and mathematical expressions for studying their behavior. Structural models, formulated from basic conservation and mass action laws and feedback concepts, are further transformed into first-order differential equations, and implemented in simulation diagrams for quantifying and exploring biosystem properties. Examples show how to use these explicit models to gain clarity on nature of biosystem phenomena, and frame questions and explore new ideas for research. Letter grading.

**183. Introduction to Cryptography (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Preparation: knowledge of basic probability theory. Enforced requisite: course 180. Introduction to cryptography, computer security, and basic concepts and techniques. Topics include notions of hardness, one-way functions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, key-agreement, homomorphic encryption, private information retrieval and voting protocols, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, and two-party secure computation with static security. Letter grading.

**184. Introduction to Computational and Systems Biology (2)** (Same as Bioengineering M184 and Computational and Systems Biology M184.) Lecture, two hours; outside study, four hours. Enforced requisites: one course from 31, Civil Engineering M20, Mechanical and Aerospace Engineering M20, or Program in Computing 10A; and Life Sciences 30B or Mathematics 3B or 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

**CM186. Computational Systems Biology: Modeling and Simulation of Biological Systems (5)** (Same as Bioengineering CM186, Computational and Systems Biology M186, and Ecology and Evolutionary Biology M178.) Lecture, four hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 30A, 30B, Mathematics 32A or M32T, 33A, and 33B; or Mathematics 31A, 31B, 32A or M32T, 33A, and 33B. Dynamic biosystem modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Intermediate linear and non-linear control system, multicompartmental, epidemiological, pharmacokinetic, and other biomodeling methods applied to life sciences problems at molecular, cellular, organ, and population levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into dynamical mathematical models, and implementing them for simulation, quantification, and analysis. Numerical simulation, optimization, and parameter identifiability and search algorithms, with model discrimination and analysis and software exercises in PC laboratory assignments. Concurrently scheduled with course CM286. Letter grading.

**CM187. Research Communication in Computational and Systems Biology (4)** (Same as Bioengineering CM187 and Computational and Systems Biology M187.) Lecture, four hours; outside study, eight hours. Requisites: course M182 or CM186 or Computational and Systems Biology M150; and research experience (course 199, Bioengineering 199, Computational and Systems Biology 199, or equivalent). Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM287. Letter grading.

**188. Special Courses in Computer Science (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Special topics in computer science for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**192. Methods and Application of Collaborative Learning Theory in Life Sciences (2)** Seminar, two hours; clinic, four hours. Requisites: course 192A or Life Sciences 192A (may be taken concurrently), and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated four times for credit. Letter grading.

**192A. Introduction to Collaborative Learning Theory and Practice (1)** (Formerly numbered 192A.) (Same as Atmospheric and Oceanic Sciences M192A, Chemistry M192E, Life Sciences M192A, Mathematics M192A, and Physics M192S.) Seminar, one hour. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. Letter grading.

**194. Research Group Seminars: Computer Science (4)** Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

**199. Directed Research in Computer Science. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**201. Computer Science Seminar (2)** Seminar, four hours; outside study, two hours. Designed for graduate computer science students. Seminars on current research topics in computer science. May be repeated for credit. S/U grading.

**202. Advanced Computer Science Seminar (4)** Seminar, four hours; outside study, eight hours. Preparation: completion of major field examination in computer science. Current computer science research into theory of, analysis and synthesis of, and applications of information processing systems. Each member completes one tutorial and one or more original pieces of work in one specialized area. May be repeated for credit. Letter grading.



**205. Health Analytics (4)** Lecture, four hours; outside study, eight hours. Enforced requisites: courses 31, 180. Recommended: statistics and probability, numerical methods, knowledge in programming languages. Applied data analytics course, with focus on healthcare applications. How to properly generate and analyze health data. Project-based course to learn about best practices in health data collection and validation. Exploration of various machine learning and data analytic tools to learn underlying structure of datasets to solve healthcare problems. Different machine learning concepts and algorithms, statistical models, and building of data-driven models. Big data analytics and tools for handling structured, unstructured, and semistructured datasets. Letter grading.

**211. Network Protocol and Systems Software Design for Wireless and Mobile (4)** Lecture, four hours; outside study, eight hours. Requisite: course 118. Designed for graduate students. In-depth study of network protocol and systems software design in area of wireless and mobile Internet. Topics include (1) networking fundamentals: design philosophy of TCP/IP, end-to-end arguments, and protocol design principles, (2) networking protocols: 802.11 MAC standard, packet scheduling, mobile IP, ad hoc routing, and wireless TCP, (3) mobile computing systems software: middleware, file system, services, and applications, and (4) topical studies: energy-efficient design, security, location management, and quality of service. Letter grading.

**212A. Queueing Systems Theory (4)** Lecture, four hours; outside study, eight hours. Requisites: course 112, Electrical Engineering 131A. Resource sharing issues and theory of queueing (waiting-line) systems. Review of Markov chains and baby queueing theory. Method of stages. M/Er/1. Er/M/1. Bulk arrival and bulk service systems. Series-parallel stages. Fundamentals of open and closed queueing networks. Intermediate queueing theory: M/G/1, G/M/m. Collective marks. Advanced queueing theory: G/G/1, Lindley integral equation, spectral solution. Inequalities, bounds, approximations. Letter grading.

**213A. Embedded Systems (4)** (Same as Electrical and Computer Engineering M202A.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 111. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for design of embedded systems. Topics include hardware and software platforms for embedded systems, techniques for modeling and specification of system behavior, software organization, real-time operating system scheduling, real-time communication and packet scheduling, low-power battery and energy-aware system design, timing synchronization, fault tolerance and debugging, and techniques for hardware and software architecture optimization. Theoretical foundations as well as practical design methods. Letter grading.

**213B. Energy-Aware Computing and Cyber-Physical Systems (4)** (Same as Electrical and Computer Engineering M202B.) Lecture, four hours; outside study, eight hours. Requisite: course M51A or Electrical and Computer Engineering M16. Recommended: courses 111, and M151B or Electrical and Computer Engineering M116C. System-level management and cross-layer methods for power and energy consumption in computing and communication at various scales ranging across embedded, mobile, personal, enterprise, and data-center scale. Computing, networking, sensing, and control technologies and algorithms for improving energy sustainability in human-cyber-physical systems. Topics include modeling of energy consumption, energy sources, and energy storage; dynamic power management; power-performance scaling and energy proportionality; duty-cycling; power-aware scheduling; low-power protocols; battery modeling and management; thermal management; sensing of power consumption. Letter grading.

**214. Big Data Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 111. Modern computing has entered era of big data. Introduction to concepts and state-of-art in modern big data systems. Study of distributed storage and database systems, which provide foundation for other systems. Discussion of systems built for specific kinds of workloads, such as processing of streaming data, relational data, batched data, graph data, as well as machine learning. Letter grading.

**215. Internet of Things: Connectivity and Sensing (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 118 or equivalent. Focus on emerging and state-of-art Internet of Things (IoT) technologies and their applications. Covers diverse set of IoT and wireless networking technologies such as millimeter wave (mmWave), acoustic, radio-frequency identification (RFID), Wi-Fi, long range (LoRa), Bluetooth, global positioning system (GPS) for variety of emerging communication and sensing applications such as 5G, digital medicine, digital farming, smart cities, and smart homes. Students learn how to design and build IoT system. Letter grading.

**216. Network Algorithmics (4)** Lecture, four hours; outside study, eight hours. Recommended preparation: one course on networks. Requisite: course 211. Introduction to algorithms for routers and servers. Models of network devices and hardware design. Principles for efficient implementation. Lookup algorithms (exact match, prefix lookups, advanced cardiac life support), fair

queueing implementations, crossbar and scalable switches, with examples from well-known networking devices. Advanced topics include traffic measurement and network security. Letter grading.

**217A. Internet Architecture and Protocols (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 118. Focus on mastering existing core set of Internet protocols, including IP, core transport protocols, routing protocols, DNS, NTP, and security protocols such as DNSSEC, to understand principles behind design of these protocols, appreciate their design tradeoffs, and learn lessons from their operations. Letter grading.

**217B. Advanced Topics in Internet Research (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 217A. Designed for graduate students. Overview of Internet development history and fundamental principles underlying TCP/IP protocol design. Discussion of current Internet research topics, including latest research results in routing protocols, transport protocols, network measurements, network security protocols, and clean-slate approach to network architecture design. Fundamental issues in network protocol design and implementations. Letter grading.

**218. Advanced Computer Networks (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 112, 118. Review of seven-layer ISO-OSI model. High-speed networks: LANs, MANs, ATM. Flow and congestion control; bandwidth allocation. Internetworking. Letter grading.

**219. Current Topics in Computer System Modeling Analysis (4)** Lecture, eight hours; outside study, four hours. Review of current literature in area of computer system modeling analysis in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

**C221. Probabilistic Models in Computational Genomics (4)** (Formerly numbered CM221.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Civil and Environmental Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Prior knowledge of biology is not required. Designed for engineering students as well as students from biological sciences and medical school. Introduction to probabilistic models in the context of genomics, with emphasis on concepts and inventing new computational and statistical techniques to analyze genomic data. Concurrently scheduled with course C121. Letter grading.

**C222. Algorithms in Computational Genomics (4)** (Formerly numbered CM222.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, and one course from Civil Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Course C221 is not requisite to C222. Prior knowledge of biology not required. Designed for engineering students as well as students from biological sciences and medical school. Databases of genomic sequence data are among the largest datasets in all of science. Assembling, indexing, and querying such tremendous datasets is computationally challenging yet critical for many areas of biomedical research. Focus on development of scalable algorithms for analysis of genomic sequence data, with additional focus on formulating biologically relevant problems as computational problems and then solving these problems by developing new algorithms. Concurrently scheduled with course C122. Letter grading.

**C224. Machine Learning Applications in Genetics (4)** (Formerly numbered CM224.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32 or Program in Computing 10C with grade of C- or better, Mathematics 33A, and one course from Civil Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Prior knowledge of biology is not required. Introduction of main applications of machine learning in genetics. Students are prepared for interdisciplinary research in genetics that involves a major computational and statistical component. Topics include introduction to genetics, identification of genes involved in disease using regression techniques, inference of heritability using linear mixed models, inferring human population history using Markov models, methods for phasing genotype data including expectation maximization, computational optimization methods and methods for dimensionality reduction including principal component analysis (PCA), and genotype-phenotype prediction using machine learning techniques. Concurrently scheduled with course C124. Letter grading.

**225. Methods and Applications in Computational Genomics (4)** (Formerly numbered M225.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to computational approaches in bioinformatics, genomics, and computational genetics through study of examples of computational approaches to interdisciplinary research in genetics and genomics. Topics include genome analysis, epigenomics, regulatory genomics, associa-

tion analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques and methods include those from statistics and computer science. Letter grading.

**226. Machine Learning in Computational Genomics (4)** (Formerly numbered M226.) Lecture, four hours; outside study, eight hours. Enforced requisite: course 32 or Program in Computing 10C with grade of C– or better. Recommended: one course from Biostatistics 100A, 110A, Civil Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, or Statistics 100A. Familiarity with probability, statistics, linear algebra, and algorithms expected. Designed for engineering students as well as students from biological sciences and medical school. Biology has become data-intensive science. Bottleneck in being able to make sense of biological processes has shifted from data generation to statistical models and inference algorithms that can analyze these datasets. Statistical machine learning provides an important toolkit in this endeavor. Biological datasets offer new challenges to the field of machine learning. Examination of statistical and computational aspects of machine learning techniques and their application to key biological questions. Letter grading.

**229S. Seminar: Current Topics in Computational Genomics (4)** (Formerly numbered M229S.) Seminar, four hours; outside study, eight hours. Designed for graduate engineering students as well as students from biological sciences and medical school. Introduction to current topics in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques include those from statistics and computer science. May be repeated for credit with topic change. Letter grading.

**230. Software Engineering (4)** Lecture, four hours; discussion, two hours. Recommended preparation for undergraduate students: prior software engineering course. Required preparation for graduate students: undergraduate-level knowledge of data structures and object-oriented program languages. As software systems become increasingly large and complex, automated software engineering analysis and development tools play important role in various software engineering tasks, such as design, construction, evolution, and testing and debugging of software systems. Introduction to foundations, techniques, tools, and applications of automated software engineering technology. Development, extension, and evaluation of mini automated software engineering analysis tool and assessment of how tool fits into software development process. Introduction to current research topics in automated software engineering. S/U or letter grading.

**231. Types and Programming Languages (4)** Lecture, four hours; outside study, eight hours. Requisite: course 131. Introduction to static type systems and their usage in programming language design and software reliability. Operational semantics, simply-typed lambda calculus, type soundness proofs, types for mutable references, types for exceptions. Parametric polymorphism, let-bound polymorphism, polymorphic type inference. Types for objects, subtyping, combining parametric polymorphism and subtyping. Types for modules, parameterized modules. Formal specification and implementation of variety of type systems, as well as readings from recent research literature on modern applications of type systems. Letter grading.

**232. Static Program Analysis (4)** Lecture, four hours; outside study, eight hours. Requisite: course 132. Introduction to static analysis of object-oriented programs and its usage for optimization and bug finding. Class hierarchy analysis, rapid type analysis, equality-based analysis, subset-based analysis, flow-insensitive and flow-sensitive analysis, context-insensitive and context-sensitive analysis. Soundness proofs for static analyses. Efficient data structures for static analysis information such as directed graphs and binary decision diagrams. Flow-directed method inlining, type-safe method inlining, synchronization optimization, deadlock detection, security vulnerability detection. Formal specification and implementation of variety of static analyses, as well as readings from recent research literature on modern applications of static analysis. Letter grading.

**233A. Parallel Programming (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 111, 131. Mutual exclusion and resource allocation in distributed systems; primitives for parallel computation: specification of parallelism, interprocess communication and synchronization, atomic actions, binary and multiway rendezvous; synchronous and asynchronous languages: CSP, Ada, Linda, Maisie, UC, and others; introduction to parallel program verification. Letter grading.

**233B. Verification of Concurrent Programs (4)** Lecture, four hours; outside study, eight hours. Requisite: course 233A. Formal techniques for verification of concurrent programs. Topics include safety, liveness, program and state

assertion-based techniques, weakest precondition semantics, Hoare logic, temporal logic, UNITY, and axiomatic semantics for selected parallel languages. Letter grading.

**234. Computer-Aided Verification (4)** Lecture, four hours; outside study, eight hours. Requisite: course 181. Introduction to theory and practice of formal methods for design and analysis of concurrent and embedded systems, with focus on algorithmic techniques for checking logical properties of hardware and software systems. Topics include semantics of reactive systems, invariant verification, temporal logic model checking, theory of omega automata, state-space reduction techniques, compositional and hierarchical reasoning. Letter grading.

**235. Advanced Operating Systems (4)** Lecture, four hours. Preparation: C or C++ programming experience. Requisite: course 111. In-depth investigation of operating systems issues through guided construction of research operating system for PC machines and consideration of recent literature. Memory management and protection, interrupts and traps, processes, interprocess communication, preemptive multitasking, file systems. Virtualization, networking, profiling, research operating systems. Series of laboratory projects, including extra challenge work. Letter grading.

**236. Computer Security (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 111, 118. Basic and research material on computer security. Topics include basic principles and goals of computer security, common security tools, use of cryptographic protocols for security, security tools (firewalls, virtual private networks, honeypots), virus and worm protection, security assurance and testing, design of secure programs, privacy, applying security principles to realistic problems, and new and emerging threats and security tools. Letter grading.

**C237A. Prototyping Programming Languages (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 131. How different programming language paradigms provide dramatically different ways of thinking about computation and offer trade-offs on many dimensions, such as modularity, extensibility, expressiveness, and safety. Concrete exploration of three major programming paradigms—functional, object-oriented, and logic programming—by prototyping implementations of languages in each. Analysis of prototypes to shed light on design and structural properties of each language and paradigm and to allow easy comparison against one another. Hands-on experience implementing new abstractions, both as stand-alone languages and as libraries in existing languages. Concurrently scheduled with course C137A. Letter grading.

**C237B. Programming Language Design (4)** Seminar, four hours; outside study, eight hours. Enforced requisite: course C237A. Study of various programming language designs, from computing history and research literature, that attempt to address problems of software systems that are bloated, buggy, and difficult to maintain and extend despite trend in computing toward ever higher levels of abstraction for programming. Hands-on experience designing, prototyping, and evaluating new languages, language abstractions, and/or programming environments. Concurrently scheduled with course C137B. Letter grading.

**238. Quantum Programming (4)** (Formerly numbered 238.) (Same as Quantum Science and Technology M205.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 115A. History of quantum computing; notion of qubit; four postulates that provide interface to quantum mechanics; concepts of quantum circuit and universal gate set; quantum teleportation; superdense coding; no-cloning theorem; suite of fundamental quantum algorithms including Shor's algorithm, Grover's algorithm, and quantum approximate optimization algorithm; several quantum programming languages and how they compare; quantum simulators; quantum compilers; quantum error correction; quantum advantage. Students implement several quantum algorithms in multiple languages and run them on both simulators and quantum computer. Letter grading.

**238B. Quantum Algorithms (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course M238. Quantum algorithms including quantum machine learning, Hamiltonian simulation, and quantum walk; quantum complexity classes including bounded-error quantum polynomial time (BQP), Quantum Merlin Arthur (QMA), and quantum interactive polynomial time (QIP); quantum verification including instrumented simulation and quantum abstract interpretation; high-level quantum languages including Silq; and big theorems in quantum computing including Gottesman-Knill and Solovay-Kitaev. Students do a variety of projects. Letter grading.

**239. Current Topics in Computer Science: Programming Languages and Systems (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science programming languages and systems in which instructor has developed special proficiency as consequence of research interests. May be repeated for credit with topic change. Letter grading.

**240A. Databases and Knowledge Bases (4)** Lecture, four hours; outside study, eight hours. Requisite: course 143. Theoretical and technological foundation of Intelligent Database Systems, that merge database technology, knowledge-based systems, and advanced programming environments. Rule-based knowledge representation, spatio-temporal reasoning, and logic-based declarative querying/programming are salient features of this technology. Other topics include object-relational systems and data mining techniques. Letter grading.

**240B. Advanced Data and Knowledge Bases (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 143, 240A. Logical models for data and knowledge representations. Rule-based languages and nonmonotonic reasoning. Temporal queries, spatial queries, and uncertainty in deductive databases and object relational databases (ORDBs). Abstract data types and user-defined column functions in ORDBs. Data mining algorithms. Semistructured information. Letter grading.

**241B. Pictorial and Multimedia Database Management (4)** Lecture, three and one half hours; discussion, 30 minutes; laboratory, one hour; outside study, seven hours. Requisite: course 143. Multimedia data: alphanumeric, long text, images/pictures, video, and voice. Multimedia information systems requirements. Data models. Searching and accessing databases and across Internet by alphanumeric, image, video, and audio content. Querying, visual languages, and communication. Database design and organization, logical and physical. Indexing methods. Internet multimedia streaming. Other topics at discretion of instructor. Letter grading.

**244A. Distributed Database Systems (4)** Lecture, four hours; outside study, eight hours. File allocation, intelligent directory design, transaction management, deadlock, strong and weak concurrency control, commit protocols, semantic query answering, multidatabase systems, fault recovery techniques, network partitioning, examples, trade-offs, and design experiences. Letter grading.

**245. Big Data Analytics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 143 or 180 or equivalent. With unprecedented rate at which data is being collected today in almost all fields of human endeavor, there is emerging economic and scientific need to extract useful information from it. Data analytics is process of automatic discovery of patterns, changes, associations, and anomalies in massive databases, and is highly inter-disciplinary field representing confluence of several disciplines, including database systems, data warehousing, data mining, machine learning, statistics, algorithms, data visualization, and cloud computing. Survey of main topics in big data analytics and latest advances, as well as wide spectrum of applications such as bioinformatics, E-commerce, environmental study, financial market study, multimedia data processing, network monitoring, social media analysis. Letter grading.

**246. Web Information Management (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 112, 143, 180, 181. Designed for graduate students. Scale of Web data requires novel algorithms and principles for their management and retrieval. Study of Web characteristics and new management techniques needed to build computer systems suitable for Web environment. Topics include Web measuring techniques, large-scale data mining algorithms, efficient page refresh techniques, Web-search ranking algorithms, and query processing techniques on independent data sources. Letter grading.

**247. Advanced Data Mining (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 145 or M146 or equivalent. Introduction of concepts, algorithms, and techniques of data mining on different types of datasets, covering basic data mining algorithms, advanced topics on text mining, recommender systems, and graph/network mining. Team-based project involving hands-on practice of mining useful knowledge from large data sets is required. Letter grading.

**249. Current Topics in Data Structures (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of data structures in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

**251A. Advanced Computer Architecture (4)** Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 111. Design and implementation of high-performance systems, advanced memory hierarchy techniques, static and dynamic pipelining, superscalar and VLIW processors, branch prediction, speculative execution, software support for instruction-level parallelism, simulation-based performance analysis and evaluation, state-of-art design examples, introduction to parallel architectures. Letter grading.

**251B. Parallel Computer Architectures (4)** Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 251A. SIMD and MIMD systems, symmetric multiprocessors, distributed-shared-memory

systems, messages-passing systems, multicore chips, clusters, interconnection networks, host-network interfaces, switching element design, communication primitives, cache coherency, memory consistency models, synchronization primitives, state-of-art design examples. Letter grading.

**252A. Arithmetic Algorithms and Processors (4)** Lecture, four hours; outside study, eight hours. Requisite: course 251A. Number systems: conventional, redundant, signed-digit, and residue. Types of algorithms and implementations. Complexity measures. Fast algorithms and implementations for two-operand addition, multioperand addition, multiplication, division, and square root. Online arithmetic. Evaluation of transcendental functions. Floating-point arithmetic and numerical error control. Arithmetic error codes. Residue arithmetic. Examples of contemporary arithmetic ICs and processors. Letter grading.

**256A. Advanced Scalable Architectures (4)** Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 251A. State-of-art scalable multiprocessors. Interdependency among implementation technology, chip microarchitecture, and system architecture. High-performance building blocks, such as chip multiprocessors (CMPs). On-chip and off-chip communication. Mechanisms for exploiting parallelism at multiple levels. Current research areas. Examples of chips and systems. Letter grading.

**258A. Design of VLSI Circuits and Systems (4)** (Same as Electrical and Computer Engineering M216A.) Lecture, four hours; discussion, two hours; laboratory, four hours; outside study, two hours. Requisites: course M51A or Electrical and Computer Engineering M16, and Electrical and Computer Engineering 115A. Recommended: Electrical and Computer Engineering 115C. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on chips. Letter grading.

**258C. LSI in Computer System Design (4)** (Same as Electrical and Computer Engineering M216C.) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course M258A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. Letter grading.

**258F. Physical Design Automation of VLSI Systems (4)** Lecture, four hours; outside study, eight hours. Detailed study of various physical design automation problems of VLSI circuits, including logic partitioning, floorplanning, placement, global routing, channel and switchbox routing, planar routing and via minimization, compaction and performance-driven layout. Discussion of applications of number of important optimization techniques, such as network flows, Steiner trees, simulated annealing, and generic algorithms. Letter grading.

**258G. Logic Synthesis of Digital Systems (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M51A, 180. Detailed study of various problems in logic-level synthesis of VLSI digital systems, including two-level Boolean network optimization; multilevel Boolean network optimization; technology mapping for standard cell designs and field-programmable gate-array (FPGA) designs; retiming for sequential circuits; and applications of binary decision diagrams (BDDs). Letter grading.

**258H. Analysis and Design of High-Speed VLSI Interconnects (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M258A, 258F. Detailed study of various problems in analysis and design of high-speed VLSI interconnects at both integrated circuit (IC) and packing levels, including interconnect capacitance and resistance, lossless and lossy transmission lines, cross-talk and power distribution noise, delay models and power dissipation models, interconnect topology and geometry optimization, and clocking for high-speed systems. Letter grading.

**259. Current Topics in Computer Science: System Design/Architecture (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science system design in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

**260. Machine Learning Algorithms (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended prerequisite: course 180. Problems of identifying patterns in data. Machine learning allows computers to learn potentially complex patterns from data and to make decisions based on these patterns. Introduction to fundamentals of this discipline to provide both conceptual grounding and practical experience with several learning algorithms. Techniques and examples used in areas such as healthcare, financial systems, commerce, and social networking. Letter grading.

**260B. Algorithmic Machine Learning (4)** Lecture, four hours; outside study, eight hours. In-depth examination of handful of ubiquitous algorithms in machine learning. Covers several classical tools in machine learning but more emphasis on recent advances and developing efficient and provable algo-

gorithms for learning tasks. Topics include low-rank approximations, online learning, multiplicative weights framework, mathematical optimization, outlier-robust algorithms, streaming algorithms. S/U or letter grading.

**260C. Deep Learning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 180, 260. Not open to students with credit for Electrical and Computer Engineering C147 or C247. Study of basics of deep neural networks and their applications, including but not limited to computer vision, natural language processing, and graph mining. Covers topics including foundation of deep learning, how to train neural network (optimization), architecture designs for various tasks, and other advanced topics. By course end, students are expected to be familiar with deep learning and be able to apply deep learning algorithms to variety of tasks. Letter grading.

**260D. Large-Scale Machine Learning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 180, 260. Not open to students with credit for Electrical and Computer Engineering C147 or C247. Study of basics of deep neural networks and their applications, including but not limited to computer vision, natural language processing, and graph mining. Covers topics including foundation of deep learning, how to train neural network (optimization), architecture designs for various tasks, and other advanced topics. By course end, students are expected to be familiar with deep learning and be able to apply deep learning algorithms to variety of tasks. Letter grading.

**260R. Reinforcement Learning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Fundamentals and advanced topics of reinforcement learning (RL), computational learning approach where agent tries to maximize total amount of reward it receives while interacting with complex and uncertain environments. Includes introduction of Markov decision processes, model-free RL and model-based RL methods, policy optimization, RL distributed system design, as well as case studies of RL in game playing such as AlphaGo, traffic simulation, autonomous driving, and other machine autonomy applications. Advanced topics of RL such as multi-agent RL, human-in-loop method, and imitation learning. Letter grading.

**261. Deep Generative Models (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course M146. Fundamentals of variational autoencoders, generative adversarial networks, autoregressive models, normalizing flow models, energy-based models, diffusion models. Applications of generative models in reinforcement learning, scientific discovery, and societal challenges in high-stakes deployments. S/U or letter grading.

**261A. Problem Solving and Search (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. In-depth treatment of systematic problem-solving search algorithms in artificial intelligence, including problem spaces, brute-force search, heuristic search, linear-space algorithms, real-time search, heuristic evaluation functions, two-player games, and constraint-satisfaction problems. Letter grading.

**262A. Learning and Reasoning with Bayesian Networks (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 112 or Electrical Engineering 131A. Review of several formalisms for representing and managing uncertainty in reasoning systems; presentation of comprehensive description of Bayesian inference using belief networks representation. Letter grading.

**262C. Current Topics in Causal Modeling, Inference, and Reasoning (4)** (Same as Statistics M241.) Lecture, four hours; outside study, eight hours. Requisite: one graduate probability or statistics course such as course 262A, Statistics 200B, or 202B. Review of Bayesian networks, causal Bayesian networks, and structural equations. Learning causal structures from data. Identifying causal effects. Covariate selection and instrumental variables in linear and nonparametric models. Simpson paradox and confounding control. Logic and algorithmization of counterfactuals. Probabilities of counterfactuals. Direct and indirect effects. Probabilities of causation. Identifying causes of events. Letter grading.

**262Z. Current Topics in Cognitive Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 262A. Additional requisites for each offering announced in advance by department. Theory and implementation of systems that emulate or support human reasoning. Current literature and individual studies in artificial intelligence, knowledge-based systems, decision support systems, computational psychology, and heuristic programming theory. May be repeated for credit with topic change. Letter grading.

**263. Natural Language Processing (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Natural language processing (NLP) enables computers to understand and process human languages. NLP techniques have been widely used in many applications, including machine translation, question answering, machine summarization, and information extraction. Study of fundamental elements and recent trends in NLP. Students gain ability

to apply NLP techniques in text-orientated applications, understand machine learning and algorithms used in NLP, and propose new approaches to solve NLP problems. Letter grading.

**263A. Language and Thought (4)** Lecture, four hours; outside study, eight hours. Requisite: course 130 or 131 or 161. Introduction to natural language processing (NLP), with emphasis on semantics. Presentation of process models for variety of tasks, including question answering, paraphrasing, machine translation, word-sense disambiguation, narrative and editorial comprehension. Examination of both symbolic and statistical approaches to language processing and acquisition. Letter grading.

**263C. Animats-Based Modeling (4)** Lecture, four hours; outside study, eight hours. Requisite: course 130 or 131 or 161. Animats are mobile/sensing animal-like software agents embedded in simulated dynamic environments. Emphasis on modeling: goal-oriented behavior via neurocontrollers, adaptation via reinforcement learning, evolutionary programming. Animat-based tasks include foraging, mate finding, predation, navigation, predator avoidance, cooperative nest construction, communication, and parenting. Letter grading.

**264A. Automated Reasoning: Theory and Applications (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 161. Introduction to theory and practice of automated reasoning using propositional and first-order logic. Topics include syntax and semantics of formal logic; algorithms for logical reasoning, including satisfiability and entailment; syntactic and semantic restrictions on knowledge bases; effect of these restrictions on expressiveness, compactness, and computational tractability; applications of automated reasoning to diagnosis, planning, design, formal verification, and reliability analysis. Letter grading.

**265A. Machine Learning (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 263A, 264A. Introduction to machine learning. Learning by analogy, inductive learning, modeling creativity, learning by experience, role of episodic memory organization in learning. Examination of BACON, AM, Eurisko, HACKER, teachable production systems. Failure-driven learning. Letter grading.

**266A. Statistical Modeling and Learning in Vision and Cognition (4)** (Same as Statistics M232A.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Computer vision and pattern recognition. Study of four types of statistical models for modeling visual patterns: descriptive, causal Markov, generative (hidden Markov), and discriminative. Comparison of principles and algorithms for these models; presentation of unifying picture. Introduction of minimax entropy and EM-type and stochastic algorithms for learning. S/U or letter grading.

**266B. Statistical Computing and Inference in Vision and Cognition (4)** (Same as Statistics M232B.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Introduction to broad range of algorithms for statistical inference and learning that could be used in vision, pattern recognition, speech, bioinformatics, data mining. Topics include Markov chain Monte Carlo computing, sequential Monte Carlo methods, belief propagation, partial differential equations. S/U or letter grading.

**267A. Probabilistic Programming and Relational Learning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to computational models of probability and statistical models of relational data. Study of relational representations such as probabilistic databases, relational graphical models, and Markov logic networks, as well as various probabilistic programming languages. Covers their syntax and semantics, probabilistic inference problems, parameter, and structure learning algorithms, and theoretical properties of representation and inference. Expressive statistical modeling, how to formalize and reason about complex statistical assumptions and encode knowledge in machine learning models. Survey of key applications in natural language processing, graph mining, computer vision, and computational biology. Letter grading.

**268. Machine Perception (4)** (Same as Electrical and Computer Engineering M206.) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for graduate students. Computational aspects of processing visual and other sensory information. Unified treatment of early vision in man and machine. Integration of symbolic and iconic representations in process of image segmentation. Computing multimodal sensory information by neural-net architectures. Letter grading.

**268S. Seminar: Computational Neuroscience (2)** Seminar, two hours; outside study, four hours. Designed for students undertaking thesis research. Discussion of advanced topics and current research in computational neuroscience. Neural networks and connectionism as paradigm for parallel and concurrent computation in application to problems of perception, vision, multimodal sensory integration, and robotics. May be repeated for credit. S/U grading.

**269. Seminar: Current Topics in Artificial Intelligence (4)** Seminar, to be arranged. Review of current literature and research practicum in area of artificial intelligence in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

**C274C. Computer Animation (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisite: course 174A. Introduction to computer animation, including basic principles of character modeling, forward and inverse kinematics, forward and inverse dynamics, motion capture animation techniques, physics-based animation of particles and systems, and motor control. Concurrently scheduled with course C174C. Letter grading.

**275. Artificial Life for Computer Graphics and Vision (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 174A. Recommended: course 161. Investigation of important role that concepts from artificial life, emerging discipline that spans computational and biological sciences, can play in construction of advanced computer graphics and vision models for virtual reality, animation, interactive games, active vision, visual sensor networks, medical image analysis, etc. Focus on comprehensive models that can realistically emulate variety of living things (plants and animals) from lower animals to humans. Exposure to effective computational modeling of natural phenomena of life and their incorporation into sophisticated, self-animating graphical entities. Specific topics include modeling plants using L-systems, biomechanical simulation and control, behavioral animation, reinforcement and neural-network learning of locomotion, cognitive modeling, artificial animals and humans, human facial animation, and artificial evolution. Letter grading.

**276A. Pattern Recognition and Machine Learning (4)** (Same as Statistics M231A.) Lecture, three hours; discussion, one hour. Designed for graduate students. Fundamental concepts, theories, and algorithms for pattern recognition and machine learning that are used in computer vision, image processing, speech recognition, data mining, statistics, and computational biology. Topics include Bayesian decision theory, parametric and nonparametric learning, clustering, complexity (VC-dimension, MDL, AIC), PCA/ICA/TCA, MDS, SVM, boosting. S/U or letter grading.

**280A. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**280AP. Algorithms: Approximation Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Background in discrete mathematics helpful. Theoretically sound techniques for dealing with NP-Hard problems. Inability to solve these problems efficiently means algorithmic techniques are based on approximation—finding solution that is near to best possible in efficient running time. Coverage of approximation techniques for number of different problems, with algorithm design techniques that include primal-dual method, linear program rounding, greedy algorithms, and local search. Letter grading.

**280CO. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**280D. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**280DA. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**280DP. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**280G. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**280P. Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

**281A. Computability and Complexity (4)** Lecture, four hours; outside study, eight hours. Requisite: course 181 or compatible background. Concepts fundamental to study of discrete information systems and theory of computing, with emphasis on regular sets of strings, Turing-recognizable (recursively enumerable) sets, closure properties, machine characterizations, nondeterminisms, decidability, unsolvable problems, easy and hard problems, PTIME/NP-TIME. Letter grading.

**282A. Cryptography (4)** (Same as Mathematics M209A.) Lecture, four hours; outside study, eight hours. Introduction to theory of cryptography, stressing rigorous definitions and proofs of security. Topics include notions of hardness, one-way functions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, secret-sharing, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, key-agreement, contract signing, and two-party secure computation with static security. Letter grading.

**282B. Cryptographic Protocols (4)** (Same as Mathematics M209B.) Lecture, four hours; outside study, eight hours. Requisite: course M282A. Consideration of advanced cryptographic protocol design and analysis. Topics include noninteractive zero-knowledge proofs; zero-knowledge arguments; concurrent and non-black-box zero-knowledge; IP&equals;PSPACE proof, stronger notions of security for public-key encryption, including chosen-ciphertext security; secure multiparty computation; dealing with dynamic adversary; nonmalleability and composability of secure protocols; software protection; threshold cryptography; identity-based cryptography; private information retrieval; protection against man-in-middle attacks; voting protocols; identification protocols; digital cash schemes; lower bounds on use of cryptographic primitives, software obfuscation. May be repeated for credit with topic change. Letter grading.

**283A. Topics in Applied Number Theory (4)** (Same as Mathematics M208A.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varshamov bounds, Shannon theorem. S/U or letter grading.

**283B. Topics in Applied Number Theory (4)** (Same as Mathematics M208B.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varshamov bounds, Shannon theorem. S/U or letter grading.

**284A. Topics in Automata and Languages (4)** Lecture, four hours; outside study, eight hours. Requisite: course 181. Additional requisites for each offering announced in advance by department. Selections from families of formal languages, grammars, machines, operators; pushdown automata, context-free languages and their generalizations, parsing; multidimensional grammars, developmental systems; machine-based complexity. Subtitles of some current and planned sections: Context-Free Languages (284A), Parsing Algorithms (284P). May be repeated for credit with consent of instructor and topic change. Letter grading.

**284C. Topics in Automata and Languages (4)** Lecture, four hours; outside study, eight hours. Requisite: course 181. Additional requisites for each offering announced in advance by department. Selections from families of formal languages, grammars, machines, operators; pushdown automata, context-free languages and their generalizations, parsing; multidimensional grammars, developmental systems; machine-based complexity. Subtitles of some current and planned sections: Context-Free Languages (284A), Parsing Algorithms (284P). May be repeated for credit with consent of instructor and topic change. Letter grading.

**284P. Topics in Automata and Languages (4)** Lecture, four hours; outside study, eight hours. Requisite: course 181. Additional requisites for each offering announced in advance by department. Selections from families of formal languages, grammars, machines, operators; pushdown automata, context-free languages and their generalizations, parsing; multidimensional grammars, developmental systems; machine-based complexity. Subtitles of some current and planned sections: Context-Free Languages (284A), Parsing Algorithms (284P). May be repeated for credit with consent of instructor and topic change. Letter grading.

**285CC. Communication Complexity (4)** Lecture, four hours; outside study, eight hours. Limited to graduate students. Mathematical maturity strongly encouraged. Introduction to communication complexity with coverage of fundamentals, key classic theorems, and current research directions. Consider function  $f$  whose arguments are distributed among several parties, making it impossible for any one party to compute  $f$  in isolation. Communication complexity theory studies how many bits of communication are needed to evaluate  $f$ . Pioneered in 1979 by Turing award winner Andrew Yao, communication complexity has become central area of theoretical computer science with deep open questions, beautiful mathematics, and vast array of applications. Letter grading.

**CM286. Computational Systems Biology: Modeling and Simulation of Biological Systems (5)** (Same as Bioengineering CM286.) Lecture, four hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 30A, 30B, Mathematics 32A or M32T, 33A, and 33B; or Mathematics 31A, 31B, 32A or M32T, 33A, and 33B. Dynamic biosystem modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Intermediate linear and nonlinear control system, multicompartamental, epidemiological, pharmacokinetic, and other biomodeling methods applied to life sciences problems at molecular, cellular, organ, and population levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into dynamical mathematical models, and implementing them for simulation, quantification, and analysis. Numerical simulation, optimization, and parameter identifiability and search algorithms, with model discrimination and analysis and software exercises in PC laboratory assignments. Concurrently scheduled with course CM186. Letter grading.

**CM287. Research Communication in Computational and Systems Biology (4)** (Same as Bioengineering CM287.) Lecture, four hours; outside study, eight hours. Requisites: course M182 or CM286 or Computational and Systems Biology M150; and research experience (course 199, Bioengineering 199, Computational and Systems Biology 199, or equivalent). Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM187. Letter grading.

**288S. Seminar: Theoretical Computer Science (2)** Seminar, two hours; outside study, six hours. Requisites: courses 280A, 281A. Intended for students undertaking thesis research. Discussion of advanced topics and current research in such areas as algorithms and complexity models for parallel and concurrent computation, and formal language and automata theory. May be repeated for credit. S/U grading.

**289A. Current Topics in Computer Theory (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of computer theory in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. Letter grading.

**289CO. Current Topics in Computer Theory: Complexity Theory (4)** Lecture, four hours; outside study, eight hours. Diagonalization, polynomial-time hierarchy, PCP theorem, randomness and de-randomization, circuit complexity, attempts and limitations to proving P does not equal NP, average-case complexity, one-way functions, hardness amplification. Problem sets and presentation of previous and original research related to course topics. Letter grading.

**289L. Current Topics in Computer Theory (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of computer theory in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. Letter grading.

**289OA. Current Topics in Computer Theory: Online Algorithms (4)** Lecture, four hours; outside study, eight hours. Requisite: course 180. Introduction to decision making under uncertainty and competitive analysis. Review of current research in online algorithms for problems arising in many areas, such as data and memory management, searching and navigating in unknown terrains, and server systems. Letter grading.

**289P. Current Topics in Computer Theory (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of computer theory in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. Letter grading.

**289RA. Current Topics in Computer Theory: Randomized Algorithms (4)** Lecture, four hours; outside study, eight hours. Basic concepts and design techniques for randomized algorithms, such as probability theory, Markov chains, random walks, and probabilistic method. Applications to randomized algorithms in data structures, graph theory, computational geometry, number theory, and parallel and distributed systems. Letter grading.

**289SG. Current Topics in Computer Theory (4)** Lecture, four hours; outside study, eight hours. Review of current literature in area of computer theory in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. Letter grading.

**296A. Advanced Modeling Methodology for Dynamic Biomedical Systems (4)** (Same as Bioengineering M296A and Medicine M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multi-compartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

**296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems (4)** (Same as Bioengineering M296B, Biomathematics M270, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course CM286 or M296A or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

**296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing (4)** (Same as Bioengineering M296C and Medicine M270E.) Lecture, four hours; outside study, eight hours. Requisite: course M296B. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual MS- and PhD-level project training. Letter grading.

**296D. Introduction to Computational Cardiology (4)** (Same as Bioengineering M296D.) Lecture, four hours; outside study, eight hours. Requisite: course CM186. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in one-dimensional and two-dimensional cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

**298. Research Seminar: Computer Science. (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Designed for graduate computer science students. Discussion of advanced topics and current research in algorithmic processes that describe and transform information: theory, analysis, design, efficiency, implementation, and application. May be repeated for credit. S/U grading.

**495. Teaching Assistant Training Seminar (2)** Seminar, four hours; outside study, two hours. Limited to graduate Computer Science Department students. Seminar on being effective teaching assistant, including preparation, classroom presentation, encouraging interactive discussion, active learning, office hours, review sessions, making up and grading assignments and exam questions, proctoring exams, and grading. S/U grading.

**495B. Teaching with Technology (2)** Seminar, two hours; outside study, four hours. Limited to graduate Computer Science Department teaching assistants. Seminar for teaching assistants covering how technology can be used to aid instruction in and out of classroom. S/U grading.

**497D. Field Projects in Computer Science (4)** Fieldwork, to be arranged. Students are divided into teams led by instructor; each team is assigned one external company or organization that they investigate as candidate for possible computerization, submitting team report of their findings and recommendations. In Progress grading (credit to be given only on completion of course 497E).

**497E. Field Projects in Computer Science (4)** Fieldwork, to be arranged. Students are divided into teams led by instructor; each team is assigned one external company or organization that they investigate as candidate for possible computerization, submitting team report of their findings and recommendations. S/U or letter grading.

**596. Directed Individual or Tutorial Studies. (1 to 8)** Tutorial, to be arranged. Limited to graduate computer science students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination. (2 to 12)** Tutorial, to be arranged. Limited to graduate computer science students. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examination. (2 to 16)** Tutorial, to be arranged. Limited to graduate computer science students. Preparation for PhD preliminary examinations. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination. (2 to 16)** Tutorial, to be arranged. Limited to graduate computer science students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis. (2 to 12)** Tutorial, to be arranged. Limited to graduate computer science students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 16)** Tutorial, to be arranged. Limited to graduate computer science students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. S/U grading.

# Conservation of Cultural Heritage

## Conservation of Cultural Heritage Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**25. Preservation of Cultural Heritage through Technology and Sustainability (4)** Lecture, three hours. Introduction to principles, ethics, methods, and challenges of conserving cultural heritage, including mobile and immobile heritage. Study of history and significance of cultural heritage, factors that contribute to its deterioration, and various approaches used to conserve and protect it. Addresses impact of climate change, global issues, digital technology, and need for sustainability by presenting case studies from around the world. Case studies include Michelangelo's Sistine Chapel ceiling, Abu Simbel temples, Parthenon marbles, Gullah Geechee Cultural Heritage Corridor, and Mark Rothko's murals at Harvard University. Letter grading.

**30. Caring for Black History: Preservation of African American Cultural Heritage (4)** Lecture, three hours. Covers efforts to preserve African American cultural heritage from both within Black communities and in the wider American cultural heritage field. Discussion of how preservation of physical items and histories is linked to American values, connecting cultural heritage conservation to social movements. Study of 19th-century efforts by African American to preserve their own history, to current campaigns both within and outside of Black communities. Uncovers roots of current diversity, equity, and inclusion challenges in cultural heritage professions. Students play a part in the preservation of cultural heritage through hands-on projects with African American cultural items. Connects material with local, Los-Angeles-based community preservation efforts. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**C120. Field Methods in Archaeological Conservation: Readiness, Response, and Recovery (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials C120.) Laboratory, four hours. Overview of risks (direct and indirect) and materials vulnerability of in situ cultural heritage and movable archaeological materials in emergency situations (rescue excavations, disasters, conflicts), with emphasis on readiness, first aid response, and recovery. Readiness focuses on preparedness and preventive measures, including reburials, shelters, rescue excavations, and documentation as well as developing inventories and awareness campaigns. First aid response covers development of on-site emergency risk assessments to evaluate damage and putting triage theory into practice, salvage rescue operations, emergency temporary in situ stabilization and protection (using locally available materials), and training. Recovery is based on documentation, lifting methods, handling, transportation, and storage. Emphasis on finding practical solutions to prevent and mitigate damage and to recover and safeguard archaeological artifacts. Concurrently scheduled with course C220. Letter grading.

**C142. Managing Collections for Museums, Libraries, and Archives (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials C142.) Lecture, two hours; activity, two hours. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Concurrently scheduled with course C242. Letter grading.



## Graduate

**210. Cultural Materials Science II: Characterization Methods in Conservation of Materials (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 210.) Lecture, four hours. Preparation: general chemistry, inorganic and organic chemistry, materials science. Principles and methods of materials characterization in conservation: optical and electron microscopy, X-ray and electron spectroscopy, X-ray diffraction, infrared spectroscopy, reflectance spectroscopy and multispectral imaging spectroscopy, chromatography, design of archaeological and ethnographic materials characterization procedures. Letter grading.

**210L. Cultural Materials Science Laboratory: Technical Study (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 210L.) Laboratory, four hours. Requisites: course M215 (or 216) and one course from 260 through 264. Corequisite: course 210. Research-based laboratory through object-based problem-solving approach in conservation materials science. Experimental techniques, characterization, and analysis of archaeological and ethnographic materials (using materials science principles and reverse engineering processes) to determine technological features, defects, and products of alteration. Hands-on experience with noninvasive imaging and spectroscopic techniques, sampling and sample preparation methods, analysis of microsamples. Letter grading.

**211. Science Fundamentals in Conservation of Materials (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 211.) Lecture, three hours. Introduction to important scientific parameters in conservation of materials that are of great importance for both fundamental science and practical applications. Students gain better understanding of intrinsic properties of materials, mechanisms of deterioration, and conservation treatments. General chemistry, physics, and physical chemistry (atomic structure bonding, etc.), fluid transfer in porous materials, diffusion, interfaces, surface tension, wetting, adsorption, adhesion, dissolution and crystallization, mechanical properties (properties/characterization), phase transformations (glass, metals, polymers). Letter grading.

**215. Cultural Materials Science I: Analytical Imaging and Documentation in Conservation of Materials (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials M215.) (Same as Materials Science M213.) Lecture, two hours; laboratory, two hours. Basic and advanced techniques on digital photography, computer-aided recording tools, and scientific imaging to determine and document condition (defects) and technological features of archaeological and ethnographic materials. Development of basic theoretical knowledge on imaging and photonics technology and practical skills on conservation photo-documentation, analytical (forensic) photography, and advanced new imaging technologies. Letter grading.

**216. Science of Conservation Materials and Methods (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 216.) Lecture, two hours; laboratory, two hours. Recommended requisite: laboratory safety fundamental concepts course by Office of Environment, Health, and Safety. Introduction to physical, chemical, and mechanical properties of conservation materials (employed for preservation of archaeological and cultural materials) and their aging characteristics. Science and application methods of traditional organic and inorganic systems and introduction of novel technology based on biomineralization processes and nanostructured materials. Letter grading.

**C220. Field Methods in Archaeological Conservation: Readiness, Response, and Recovery (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials C220.) Laboratory, four hours. Overview of risks (direct and indirect) and materials vulnerability of in situ cultural heritage and movable archaeological materials in emergency situations (rescue excavations, disasters, conflicts), with emphasis on readiness, first aid response, and recovery. Readiness focuses on preparedness and preventive measures, including reburials, shelters, rescue excavations, and documentation as well as developing inventories and awareness campaigns. First aid response covers development of on-site emergency risk assessments to evaluate damage and putting triage theory into practice, salvage rescue operations, emergency temporary in situ stabilization and protection (using locally available materials), and training. Recovery is based on documentation, lifting methods, handling, transportation, and storage. Emphasis on finding practical solutions to prevent and mitigate damage and to recover and safeguard archaeological artifacts. Concurrently scheduled with course C120. Letter grading.

**221. Principles, Practice, and Ethics in Conservation of Cultural Heritage (4)** (Formerly numbered 221.) (Same as Art History M272B.) Seminar, three hours. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Use of several examples of issues and problems involved in preservation of works of art, from L.A. Murals to Sistine Chapel, from ancient wall paintings to Statue of Liberty. Discussion of issues of preservation and

restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values in conservation of cultural materials, illustrating how cultural materials may have been treated differently according to those values. S/U or letter grading.

**222. Conservation and Community (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 222.) Laboratory, four hours. Designed for graduate conservation students. Introduction to work as conservators with indigenous repositories housing cultural collections. Students learn different models for tribal museums and cultural centers, and importance of material selection and properties in baskets they are treating. Letter grading.

**224. Issues in Preservation and Management of Archaeological and Cultural Sites (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 224.) Seminar, three hours. Designed to offer practical model of preservation and management planning for heritage sites that reflects real case-study scenarios. Adaptive management planning following iterative processes for sustainable heritage preservation addressing threats and challenges such as climate change and global warming, conflicts, and neglect. Consideration of significance and value of heritage sites and role of stakeholders. Investigation of methods of evaluation of physical condition and development of risk assessments to address physical risks in milieu of site preservation management, including visitors' organization, urban development, socioeconomic growth, and tourist development. Letter grading.

**230. Conservation Laboratory: Ceramics, Glass, Glazes (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 230.) Laboratory, four hours. Requisite: course 260. Recommended: course M215. Hands-on study in deterioration and conservation of ceramics and glass. Evaluation of use of conservation materials in joining, gap-filling, and restoration of ceramics and experience in their use provided. Letter grading.

**231. Conservation Laboratory: Stone and Adobe (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 231.) Laboratory, four hours. Enforced requisite: course 261. Research-based laboratory on conservation of stone and adobe. Conservation issues on cleaning, consolidation, protection, and structural instability. Characterization, diagnostic assessment, and development of conservation treatment proposals. Testing of materials. Letter grading.

**232. Conservation Laboratory: Organic Materials I (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 232.) Laboratory, four hours. Enforced requisite: course 262. Designed for graduate conservation students. How to recognize characteristic deterioration problems found in organic materials from archaeological and ethnographic contexts and introduction to typical treatments used historically and currently for these materials. Materials focus on wood, bark and barkcloth, paper, and plastics and rubber. Letter grading.

**234. Conservation Laboratory: Metals I (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 234.) Laboratory, four hours. Enforced requisite: course 263. Recommended: course 215. Recommended corequisite: course M210. Designed for graduate conservation students. Hands-on work to study deterioration and conservation of metallic artifacts and composite objects containing metals (copper and copper alloys, and silver). Corrosion of ancient metals and their deterioration processes, conservation, problems in stability, issues with composite objects, their deterioration and stabilization, cleaning, joining, and gap-filling. Letter grading.

**238. Conservation Laboratory: Organic Materials II (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 238.) Laboratory, four hours. Enforced requisite: course 262. Designed for graduate conservation students. Typical treatments used historically and currently for deterioration problems found in organic materials from archaeological and ethnographic contexts. Materials include plant and animal fibers, feathers, and quills. Letter grading.

**239. Conservation Laboratory: Metals II (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 239.) Laboratory, four hours; outside study, eight hours. Requisites: courses 234, 263. Recommended: courses M210, M215. Treatment of conservation problems of metallic artifacts made of iron, steel, cast iron, gold, zinc, and aluminum that have some importance in ethnographic objects. Practical work on metallic artifacts. Letter grading.

**240. Environmental Protection of Collections for Museums, Libraries, and Archives (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials M240.) (Same as Information Studies M238.) Lecture, two hours; laboratory, two hours. Requisite: Information Studies 432. Required of graduate conservation students. Review of environmental and biological

agents of deterioration, including light, temperature, relative humidity, pollution, insects, and fungi. Emphasis on monitoring to identify agents and understanding of materials sensitivities, along with protective measures for collections. Letter grading.

**241. Conservation Laboratory: Organic Materials III (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 241.) Laboratory, four hours. Enforced requisites: courses 232, 238, 262. Designed for graduate conservation students. Treatment of organic materials from archaeological and ethnographic contexts and introduction to typical treatments used historically and currently for these materials. Materials include wood, gourd, paper, bark, and barkcloth. Letter grading.

**C242. Managing Collections for Museums, Libraries, and Archives (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials C242.) Lecture, two hours; activity, two hours. Designed for graduate conservation students. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Concurrently scheduled with course C142. Letter grading.

**244. Collection Management for Archives, Libraries, and Museums (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials M244.) (Same as Information Studies M244.) Lecture, two hours; fieldwork, two hours. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Letter grading.

**250. Conservation Laboratory: Rock Art, Wall Paintings, and Mosaics (4)** (Formerly numbered M250.) Laboratory, four hours. Requisites: courses 210, 210L, 264. Recommended: course M215. Research-based laboratory on conservation of rock art, wall paintings (archaeological and modern composites on cements), mosaics, and decorated architectural surfaces. Experimental techniques and analysis of materials (using materials science and reverse engineering processes) for characterization of technology, constituent materials, and alteration products; development of conservation treatment proposals, testing of conservation products, and methods and conservation treatment. Letter grading.

**251. Contemporary Development in Conservation (4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 251.) Seminar, two hours. Designed for graduate conservation students. Seminar series of invited international experts in archaeological and ethnographic conservation, who address contemporary issues in conservation of cultural materials. Letter grading.

**260. Structure, Properties, and Deterioration of Materials: Ceramics, Glass, Glazes (2)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 260.) Lecture, three hours. General introduction to different types of ancient ceramic and glass materials. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties of ceramics, glass, glazes. Nature of frit and faience deterioration explained using basic concepts from physics and chemistry. Chemical, optical, and structural properties. Deterioration phenomena, defects, and products of alteration of ceramics and vitreous artifacts. Hands-on examination of variety of samples and artifacts. Letter grading.

**261. Structure, Properties, and Deterioration of Materials: Stone and Adobe (2)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 261.) Lecture, three hours. Introduction to igneous, sedimentary, and metamorphic rocks (geological context, mineralogical composition, macrostructure, and microstructure). Clay minerals: composition, structure, and properties. Rocks and stone: geographical distribution and occurrence, and usage by ancient cultures. Adobe: clay-based manmade materials. Mechanical and petrophysical properties of stone and adobe. Relationships between composition/structure and properties. Intrinsic and structural stability, resistance to weathering. Deterioration mechanisms and factors (physical, chemical, and biochemical). Letter grading.

**262. Structure, Properties, and Deterioration of Materials: Organics I (2)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 262.) Lecture, one hour; laboratory, one hour. General introduction to different types of organic materials used to produce ethnographic and archaeological cultural heritage. Relationship between material composition, processing, and properties of natural and manufactured materials using basic concepts from biology and chemistry. Structural stability and deterioration phenomena of these materials as found in cultural collections. Letter grading.

**263. Structure, Properties, and Deterioration of Materials: Metals (2)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 263.) Lecture, three hours. General introduction to different types of ancient and ethnographic metals. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties of metals explained using basic concepts from physics and chemistry.

Chemical, optical, and structural properties. Deterioration phenomena, defects, and products of alteration of metallic artifacts. Hands-on examination of variety of samples and artifacts. Letter grading.

**264. Structure, Properties, and Deterioration of Materials: Rock Art, Wall Paintings, Mosaics (2)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 264.) Lecture, three hours. Recommended preparation: basic knowledge of general chemistry and materials science. Introduction to materials and techniques of rock art, wall paintings (including painted surfaces on cement and composite decorative architectural surfaces), and mosaics. Archaeological and ethnographic context, techniques, and materials. Pigments, colorants, and binding media. Chemical, optical, and structural properties. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties explained using basic concepts from physics and chemistry. Intrinsic attributes and resistance to weathering. Causes, sources, and mechanisms of deterioration (physical, chemical, and biochemical). Letter grading.

**265. Structure, Properties, and Deterioration of Materials: Organics II (2)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 265.) Lecture, one hour; laboratory, one hour. General introduction to plant-based organic materials used to produce ethnographic and archaeological cultural heritage: wood, bark, paper, bast fibers, grasses. Relationship between materials, processing, and properties of natural materials using basic concepts from biology and chemistry. Structural stability and deterioration phenomena of these materials as found in cultural collections. Letter grading.

**288. Special Topics in Conservation. (2, 4)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 298.) Lecture, three hours; laboratory, one hour. Special topics on theoretical and practical subjects in conservation such as focused materials studies, new conservation approaches, advanced scientific applications, or current special work by core program faculty or visiting scholars. If appropriate, field trips may be arranged. May be repeated for credit with topic or instructor change. Letter grading.

**290. Conservation Program Internship. (6, 12)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 498.) Fieldwork, 20 or 40 hours. Open only to Conservation MA program graduate students who have completed first year of conservation program coursework. Supervised conservation-related professional and research-based training in field through participation in field projects (i.e., archaeological excavation, site management, indigenous site preservation and consultation), as well as in museum, library, archive, and collections conservation and science departments, regional and national laboratories, or at other similar venues. All intern placements must be preapproved by program and developed in collaboration between student, faculty members, and host institution/agency. S/U grading.

**596. Directed Individual Studies (2 to 6)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 596.) Tutorial, seven hours. Limited to graduate conservation students. Individual guided studies that may include conservation research and/or surveys or treatment projects carried out at Villa laboratories or at local collection or analytical facility. To be arranged with program faculty members, and supervision may be shared between faculty members and outside specialists. Letter grading.

**597. Preparation for PhD Qualifying Examination. (2 to 12)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 597.) Tutorial, to be arranged. May not be applied toward PhD course requirement. May be repeated for credit. S/U grading.

**598. MA Thesis Preparation. (2 to 12)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 598.) Tutorial, two hours; laboratory, one hour. Development of research paper on conservation topic or treatment-based investigation that can be theoretical in scope or practically oriented. Letter grading.

**599. PhD Dissertation and Preparation. (2 to 12)** (Formerly numbered Conservation of Archaeological and Ethnographic Materials 599.) Tutorial, to be arranged. May not be applied toward PhD course requirement. May be repeated for credit. S/U grading.

# Dentistry

## Dentistry Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Individual Special Studies. (2 to 8)** Tutorial, to be arranged. Studies in dentistry and related subject areas appropriate for training of particular students, with required reading assignments or laboratory work leading to final oral or written examination. May be repeated for maximum of 16 units. P/NP or letter grading.

**199H. Individual Special Studies (Honors) (2 to 8)** Tutorial, to be arranged. Studies in dentistry and related subject areas appropriate for training of particular students, with required paper submitted at end of course in addition to final examination (paper to be of publication quality as judged by course mentor). May be taken for maximum of 8 units. P/NP or letter grading.

### Graduate

**441C. Introduction to Healthcare (2)** Lecture, two hours. Description and analysis of American dental care system from historical, ethical, and legal perspectives. Assessment of how dentistry fits within general provision of health-care services in America, with comparisons to dental care provisions in other countries. S/U grading.

# Design|Media Arts

## Design|Media Arts Courses

### Lower Division

**1. Social Software Studio: Art and Code (4)** Studio, 30 hours. Limited to high school students. Exploration of what code can do within the visual arts and what can be done with it. Focus on exercises with templates that can be modified and adjusted for new learners, and that can be extended by people with prior knowledge in this area. Includes series of short exercises covering a wide range of possibilities and a final project. Exploration of range of experiences including drawing, coding for the web, interactive performance, and generative art. Creation of software within visual arts realm. Builds a foundation for future learning. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

**2. Social Software Studio: Art and Artificial Intelligence (4)** Studio, 30 hours. Limited to high school students. Exploration of how artificial intelligence (AI) interacts with the visual arts, and automated algorithms as a tool for creative expression. Starting from early collage and montage practices, exploration of how artists have used cultural fragments as their medium to explore meaning through juxtaposition and appropriation. Study of how computational methods enabled artists to explore such practices with increasing fidelity and magnitudes of data. Consideration of recent surge in interest in the field of AI, and what that might mean for understanding art. Discussion of topics such as perception, augmentation, deep fakes, surveillance, privacy, and automation. Includes short lectures, discussions, workshops, time to work in class, and feedback sessions. No prior programming or machine learning knowledge required. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

**3. Game Design (4)** Studio, 30 hours. Limited to high school students. Development of fundamental skills to create games and game art that express personal and subjective approach to game making. Artistic vision combined with technological expertise to teach students fundamentals of designing games, building game worlds, creating game characters, and making playable games for mobile platforms. Use of current software and technology, including Maya and Unity3D. Creation of game projects that students exhibit and can use for college applications. Offered only as part of UCLA Game Lab Summer Institute. P/NP grading.

**4. Audio Video Design (2)** Studio, 30 hours. Limited to high school students. Creation of storyboard for short documentary, commercial, or music video. Students shoot and edit their own work by learning fundamentals of preproduction and postproduction using latest digital software, Adobe Premiere and After Effects, to create their work. Burning of DVD of finished production. Visits from professional video producer to help guide students in creating their own videos. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

**5. Introduction to Design | Media Arts (4)** Studio, 40 hours. Limited to high school students. Two-week summer course designed to meet needs of high school students interested in exploring their creative potential within fields of design media arts, with focus on concepts of narrative and storytelling. Introduction to and exploration of variety of media such as graphic, web, game, and video design with goal of combining and integrating these media to express and realize their narrative projects. Students work with most current software and technology in each discipline area, developing diverse skill sets while cultivating conceptual capabilities around storytelling project, and with experienced instructors and professionals in field to develop projects utilizing this comprehensive and integrative approach. Culminates in portfolios that may be used for college applications. Possible field trips. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

**6. Art/Science and Technology Studio/Laboratory (4)** Studio/laboratory, 40 hours. Limited to high school students. Two-week summer course, including lectures, required screenings, laboratory visits, field trips, and outside study. Exploration of creative aspects of scientific research and innovation to gain broad understanding of impact of science on contemporary art and popular culture, with focus on new sciences of biotechnology and nanotechnology. Development of proposals and ideas that could serve as prototypes for either art projects or scientific research study. P/NP grading.

**7. Critical Game Culture (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Introduction to critical issues in the culture and history of games. Consideration of games and game culture in relation to contemporary social issues such as economics and class, environment, violence, gender

identity, and cross-cultural representation. Weekly focus on a different subject or topic related to games and games culture, combining reading, lecture, discussion, game examples, and opportunities for hands-on gameplay. P/NP or letter grading.

**8. Media Histories (5)** Lecture, three hours; outside study, 12 hours. Synthetic overview of optical media and aesthetic movements covering past two centuries: photography and industrialization/Romanticism (1850 to 1900), cinema and modernism (1900 to 1950), television and postmodernism (1950 to 2000), and digital media and unimodernism (2000 to 2050). How such movements can inform generative work and how understanding these media becomes essential in emerging era of digital humanities. P/NP or letter grading.

**9. Art, Science, and Technology (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration and survey of cultural impact of scientific and cultural innovations, technology-driven art inspired by science, and art/science collaborative projects. Introduction to vast array of cutting-edge research taking place on campus; scientific guest lecturers. Emphasis on art projects that use technology and respond to new scientific concepts. P/NP or letter grading.

**10. Design Culture (5)** Lecture, three hours; outside study, 12 hours. Open to nonmajors. Understanding design process, with emphasis on development of visual language; study of historic, scientific, technological, economic, and cultural factors influencing design in physical environment. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**21. Drawing and Color (4)** Studio, six hours; outside study, six hours. For drawing, exploration of relationship between concept and image creation while fostering development of sound drawing and observation skills. For color, exploration of development of fundamental skills in mixing and applying pigments with brush on watercolor paper, as well as use of computer as tool for working with colors. Combination of painting and software to be predominant way of exploring and presenting ideas regarding color. P/NP or letter grading.

**22. Form (4)** Studio, six hours; outside study, six hours. Interrelation of two-dimensional surfaces and three-dimensional forms with traditional and experimental materials as foundation for creativity; origination and solution of problems. P/NP or letter grading.

**24. Motion (4)** Studio, six hours; outside study, six hours. Introduction and integration of traditional design tools, camera, and digital technologies for application to visual thinking and fundamentals of design. P/NP or letter grading.

**25. Typography (4)** Studio, six hours; outside study, six hours. Focus on three typographic basics: letter, text, and grid. Introduction to fundamentals of typography. Assignments designed to develop understanding of form, scale, and shape of letters as single elements and as texture in layout. Emphasis on grid (structure and layout) and information hierarchy to create successful typographic messages. P/NP or letter grading.

**28. Interactivity (4)** Studio, six hours; outside study, six hours. Requisites: courses 21, 22, 25. Introduction to concept of interactivity and field of media art that follows history of computer as media for artistic exploration in relation to print, animation, and interactivity. Discussion of potential and ideas related to interactivity, with focus on required skills for creating interactive work. Development of programming skills in service of creating examples of media art. Concepts and skills taught enhance student ability to excel in future courses about Internet, animation, interactive media, and game design. Discussion and readings on four themes—form/programming, motion, interactivity/programming, and interface. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Media Arts: Introduction (5)** Lecture, three hours; outside study, 12 hours. Limited to and required of Design | Media Arts majors. Survey of media arts, their history, aesthetics, and cultural roles from late-19th century to present. Investigation of media arts within broad historical and cultural framework. Discussion of parallels and links with other cultural forms, including history of technology and various art and design practices. P/NP or letter grading.

**104. Design Futures (5)** Lecture, three hours; outside study, 12 hours. Preparation: completion of preparation for major courses. Open to nonmajors with consent of instructor. Critical examination of design practice and theory of 20th and 21st centuries, incorporating historical as well as speculative methodologies. Consideration of how various design practices and techniques related to each other across cultures and media, with strong emphasis on communication design. P/NP or letter grading.

**110. Tangible Media (5)** (Formerly numbered 152.) Studio, six hours; outside study, nine hours. Requisites: courses 22, 28, and 101 or 104. Through workshops, readings, lectures, critiques, and discussions, reevaluation of role of desktop computers (and their mice, trackpads, keyboards, screens, and gamepads) plays in forming our understanding of what is technically possible, sensible, logical, foolish, magical, and intuitive. Letter grading.

**111. Art and the Internet (5)** (Formerly numbered 161.) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisites: courses 28, 140. Exploration of creative, technical, and critical tools to realize Internet-based projects. Focus on students gaining deeper understanding of Internet as creative platform—where did it come from, how does it work, how do you make things for it, and what do you want to say? Technical workshops on HTML, CSS, JavaScript, and design support development of series of studio projects using variety of network tools. Examination through discussion of cultural, social, political, and philosophical implications of Internet. Consideration of roles of race, gender, sexuality, disability, class, and influence within increasingly networked world, and strategies of response as artists and designers. Examination and challenging of structuring power relationships, inequities, and biases embedded within network tools, technologies, and media. Letter grading.

**125. Game Design (5)** (Formerly numbered 157.) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisites: courses 24, 28, and 101 or 104. Introduction to game design, with focus on developing conceptual and practical skills that form basis for both digital and nondigital game development. Development of four playable game projects that explore various aspects of game design: rule design, game balance, multiplayer strategy, complexity, randomness, polemics, narrative, physical interaction, and aesthetic and pragmatic aspects of physical game design. Letter grading.

**126. Game Engine (5)** (Formerly numbered 158.) Studio, six hours; outside study, nine hours. Requisites: courses 24, and 101 or 104. Introduction of fundamentals of programming interactive projects in game development software. Focus on familiarizing students with game engines, computer programming concepts, player experience, and other skills that are foundational to making digital games. Lectures, exercises, and class projects teach skills needed to create digital games including custom rules, interactive physics systems, vectors, generative or randomized levels, save data, custom input systems, score-keeping, and sound. Letter grading.

**127. Interactive Animation (5)** (Formerly numbered 155.) Studio, six hours; outside study, nine hours. Requisites: courses 101 or 104, and 131. Exploration of traditional and experimental animation techniques that are central to 2D and 3D interactive digital projects and video games. Development of skills and concepts that are integral to animation workflows and game engine animation systems including traditional animation principles, 2D sprite animation, rigging 2D and 3D game objects, and character controller implementation. Students experiment with common and alternative input methods for real-time interactivity. Readings, screenings, and in-class gameplay sessions supplement lessons. P/NP or letter grading.

**131. Three-Dimensional Modeling and Motion (5)** (Formerly numbered 156.) Studio, six hours; outside study, nine hours. Requisite: course 101 or 104. Introduction to theories of three-dimensional form, spatial design, and lighting, using three-dimensional visualization and video tools. Tools originally designed for motion to be used to construct form. Use of aspects of time, such as speed and duration, to contemplate form and interaction. Exploration of virtual versus real form. Letter grading.

**140. Word + Image (5)** (Formerly numbered 154.) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisites: courses 21, 22, 25, and 101 or 104. Focus on relationship of type to content, image, and materials. Acquisition of knowledge of and sensitivity

to typography in context of complex communication problems in print and digital media. Research, concept and content development, and articulation of methodology for visualization. Letter grading.

**144. Type in Motion (5)** Studio, six hours; outside study, nine hours. Requisites: courses 21, 22, 24, 25, 28, and 101 or 104. Typographic vocabulary is expanded through the use of time-based composition, sound, and animation. The application of kinetic media enables motion, scale change, and sequence to typographic communication. By experiencing the rhythmic and expressive use of type in motion, investigation of varying type size, weight, spatial relationships, form and counter form, and movement within a word, while preserving typographic principles. Students are exposed to a more interpretive use of typography, which can be applied to a variety of applications such as film and television titles, commercials, information kiosks, interactive signage, websites, and presentations. Letter grading.

**153. Video (5)** Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisite: course 101 or 104. Use of video technology (video systems, cameras, displays, editing, and storage) to integrate image, sound, time, and motion. Emphasis on expression, continuity, and sequential patterns for video communication. P/NP or letter grading.

**159. Capstone Senior Project in Design Media Arts (5)** (Formerly numbered 159A.) Studio, six hours; outside study, nine hours. Requisites: courses 8, 10, 21, 22, 24, 25, 28, 101, and 104, and 160, 171, 172, or 173. Preparation: completion of preparation for major courses. Students should have completed six core, upper-division studio courses. Limited to seniors and should be completed in last year. Focus on creating final project that can be showcased at Senior Show. Letter grading.

**159B. Capstone Senior Project: Video and Animation (5)** Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisites: courses 24, 28, 101, 104, 153, 156, and 160, 171, 172, or 173. Limited to seniors. Linear media, including storyboarding, video, animation, modeling, editing, postproduction, and lighting. Focus on creating final project that can be showcased at Senior Show. Students can take two different courses in different terms or the same course twice in different terms. Total units for courses 159A, 159B, and 159C may not exceed 10 units, with maximum of 5 units per term. Letter grading.

**159C. Capstone Senior Project: Visual Communication and Image (5)** Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisites: courses 24, 28, 101, 104, 154, and 160, 171, 172, or 173. Visual communication, editorial design, photography, typography, branding, and narrative environments. Limited to seniors. Visual communication, editorial design, photography, typography, branding, and narrative environments. Focus on creating final project that can be showcased at Senior Show. Students can take two different courses in different terms or the same course twice in different terms. Total units for courses 159A, 159B, and 159C may not exceed 10 units, with maximum of 5 units per term. Letter grading.

**160. Special Topics in Design | Media Arts (5)** Studio, six hours; outside study, nine hours. Completion of preparation for major and upper-division core courses required. Requisite: course 101 or 104. Selected topics in design and media arts explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit with topic change. Letter grading.

**163. Narrative (5)** Lecture, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Requisite: course 101 or 104. Provides wider understanding of arts that parallels world of 20th-century visual languages. Study of threads that allow viewer to connect story of one art form to another in richer context. Letter grading.

**171. Topics in Interactivity and Games (5)** Studio, six hours; outside study, nine hours. Completion of preparation for major and upper-division core courses required. Requisites: courses 101 or 104, 157. Selected topics in interactive media and games explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Letter grading.

**172. Topics in Video and Animation (5)** Studio, six hours; outside study, nine hours. Completion of preparation for major and upper-division core courses required. Requisites: courses 101 or 104, and 153 or 156. Selected topics in video and animation explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Letter grading.

**173. Topics in Visual Communication and Image (5)** Studio, six hours; outside study, nine hours. Completion of preparation for major and upper-division core courses required. Requisites: courses 24, 28, 101 or 104, 154. Selected topics in visual communication and image explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**195A. Community or Corporate Internships in Design | Media Arts (2)** Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to design. Students meet on regular basis with instructor and provide periodic reports of their experience. Courses 195A and 195B may be repeated for combined maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**195B. Community or Corporate Internships in Design | Media Arts (4)** Tutorial, 12 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to design. Students meet on regular basis with instructor and provide periodic reports of their experience. Courses 195A and 195B may be repeated for combined maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**198. Honors Research in Design | Media Arts (4)** Tutorial, two hours. Preparation: 3.0 grade-point average overall. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated once for credit. Individual contract required. Letter grading.

**199. Directed Research in Design | Media Arts (2 to 5)** Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Design|Media Arts Faculty Seminar (2)** Seminar, two hours. Limited to graduate design|media arts students. Designed to familiarize new graduate students with departmental faculty members and their creative work and research to help students select their faculty advisers. May be repeated once for credit. S/U grading.

**252A. Coding for the Arts (5)** Studio, six hours; outside study, nine hours. Limited to majors. Introduction to computer programming within context of art and design. Exploration of conceptual space enabled by electronic media through exercises, presentations, discussions, and critiques. Weekly exercises balance concept and technique to reveal potential of computer as medium and tool. Experience with programming basics includes procedural and object-oriented programming, two- and three-dimensional graphics, file I/O, color models, and image processing. Letter grading.

**252B. Programming Media 2 (3)** Studio, six hours; outside study, nine hours. Enforced requisite: course 252A. Limited to majors. Exploration of use of electromechanical actuators and sensors, custom interface design, microcontroller programming, and building kinetic and interactive physical artworks. Practical electronics theory, programming for embedded systems, two-dimensional and three-dimensional CAD, basic milling, laser cutting, mold making, circuit building, and other sculptural electronics fabrication techniques. Letter grading.

**252C. Virtuality (5)** Studio, six hours; outside study, nine hours. Limited to Design|Media Arts majors. Introduction to essential 3D computer graphics techniques, concepts, and implementations. Students complete short exercises to better understand workflows used to create 3D digital art and adjacent media including but not limited to 3D models and animation, virtual and augmented reality, video games, motion capture, photogrammetry, 3D scanning, and physics simulations. Offers technical, formal, and theoretical background for 3D computer graphics to inspire new perspectives on potential of art-making in virtual spaces. Letter grading.

**266. Creating Context and Collaborative Projects (3)** Studio, three hours; outside study, six hours. Focus on collaborative, cooperative, and curatorial artists' practice that takes place beyond traditional and familiar venues. Study of examples of impactful historical and ongoing initiatives, specifically those that endeavor to create context for new artistic practices. Students work collaboratively to organize a culminating public facing event. May be repeated once for credit. Letter grading.

**269. Graduate Seminar (4)** Seminar, four hours. Designed for graduate design | media arts students. Survey of critical theories in media art and design. Critical examination of student work by peers, faculty members, and expert guests. Must be taken twice for MFA degree. May be repeated for credit with consent of adviser. Letter grading.

**272. Introduction to Art | Science (5)** Seminar, three hours. For past 50 years artists have increasingly moved from being inspired by scientific innovation and discovery to actually collaborating with scientists and even residing and working in science laboratories. History of science in relation to artists' interpretation of scientific work to current works that are created in response to recent developments in biotechnology and nanotechnology. Letter grading.

**282. Contemporary Topics in Media Arts (3)** Seminar, two hours; outside study, seven hours. Through discussions, readings, screenings, and critical writing, addresses a set of themes related to creative practices in moving image and computational media, and their historical and political roots. These include critical race theory, posthumanism, privacy, technology and power, identity and virtuality, digital aesthetics, play, and non-human authorship. Letter grading.

**289. Special Topics in Media Arts (3)** Seminar, 90 minutes; seven and one half hours arranged. Examination of topics relevant to media arts theory and practice, with scheduled meetings to be arranged between faculty member and student as needed. Topics announced in advance. May be taken for maximum of 18 units. Letter grading.

**403. Graduate Critique (2)** Seminar, three hours; outside study, three hours. Limited to first- and second-year departmental graduate students. Students meet with instructor in small classroom setting to exchange ideas through presentation of current projects and research, discussion, research papers, and reports. Instructors may invite visiting critics to contribute. May be repeated for credit. S/U grading.

**404. Graduate Tutorial (3)** Tutorial, three hours; outside study, six hours. Limited to first- and second-year departmental graduate students. Development of body of work while working toward MFA degree, with one-to-one interaction between students and faculty members. May be repeated for credit. Letter grading.

**495. Teaching Assistant Training Practicum (2)** Seminar, three hours; outside study, three hours. Forum for first-year teaching assistants for discussion and exploration of teaching pedagogy and classroom mechanics. Problems and practices of teaching design at college level, as well as role of teaching assistants within department. Designed to help new teaching assistants develop teaching skills and to orient them to department and University policies and resources. May not be applied toward degree requirements. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

**597. Preparation for MFA Comprehensive Examination. (4 to 8)** Tutorial, to be arranged. Designed for second-year MFA students to prepare for comprehensive examination. May be repeated for credit with consent of adviser. S/U grading.

**598. MA Research and Thesis Preparation. (4 to 12)** Tutorial, to be arranged. Designed for second-year MA students. May not be applied toward minimum graduate course or unit requirements for MA degree. May be repeated for credit. S/U grading.

# Digital Humanities

## Digital Humanities Courses

### Lower Division

**11. Mathematics Studio for Data Science. (1 to 2)** Studio, one to two hours. Designed for students who feel that their ability to participate in research opportunities is limited by their data science skills, and that their ability to acquire data science skills is limited by discomfort with mathematics. Review, preview, and practice of commonly used mathematics skills. Focus on topics relevant to data science, and especially to social science questions. All students who want to practice mathematics in a friendly and supportive environment are welcome. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**30. Los Angeles Tech City: Digital Technologies and Spatial Justice (5)** Lecture, two and one half hours; studio, two hours. Investigation of spatial justice and injustice in multi-ethnic city of Los Angeles through lens of three thematic technologies that built and transformed Los Angeles into global metropolis: cars and highways, networking technologies culminating in Internet and World Wide Web, and film and broadcast media. Use of innovative forms of investigation and communication, from digital mapping to video-sensing, to integrate interpretative and historical approaches of humanities with material and projective practices of design. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101. Introduction to Digital Humanities (4)** Lecture, 75 minutes; discussion, 75 minutes. Foundation course for students in Digital Humanities minor, providing theoretical and conceptual framework for understanding genesis of digital world. Use of contemporary cultural-historical methodology to focus on rise of new media and information technologies in 19th, 20th, and 21st centuries, such as photography, film, radio, television, Internet, and World Wide Web and their impact on how individuals, groups, and cultures experienced their worlds. Letter grading.

**110. User Experience and Design (4)** Seminar, three hours. Requisite: course 101. Introduction to fields of user experience (UX) research and design. Covers UX design methods and process, including ethnographic field research, persona-scenario development, information architecture, prototyping, and usability testing. Students learn by hands-on practice in human-centered process: how to understand users, how to design interface and interaction for users, and how to evaluate and communicate user experience design with users. Letter grading.

**120. Social Media Data Analytics (4)** Lecture, three hours; laboratory, one hour. Requisite: course 101 or consent of instructor. Social media data analytics, with focus on questions of power, privilege, identity, whose voices count and in what spaces, as well as how data science and digital humanities may be used to challenge power structures. Study of how social media has been used both to undermine and to support social justice and political change movements, ways in which social media data is currently used by cor-

porate entities, and ethical data usage. Students learn digital research methods including quantitative and qualitative data analytics, statistics, as well as data visualization to examine social media data. Letter grading.

**121. Race, Gender, and Data (4)** (Same as Community Engagement and Social Change M121.) Seminar, three hours. Requisite: course 101. Data plays a crucial role in political representation, governmental resource allocation, and policy decisions. Investigation of how data does or does not ascribe a quantitative value to a human life by employing a community-engaged emphasis to study how emerging digital models link data with social justice organizing. Students learn to read datasets produced by governmental entities such as the U.S. Census Bureau, Bureau of Labor Statistics, and Department of Health and Human Services. Assignments include working on a community-engaged data project that evaluates and addresses key concerns facing communities-of-color. Introduction to critical data studies and applied data ethics. Studio sessions include lessons on finding and analyzing datasets relevant to racial and gender justice themes; and to generating data visualizations, digital stories, and maps using the latest software tools. No prior knowledge of statistics or quantitative analysis is required. P/NP or letter grading.

**125. Data Analysis for Social and Cultural Research (4)** Seminar, three hours. Requisite: course 101 or consent of instructor. Data analysis and statistical methods tailored for students in humanities and social sciences, with focus on topics and issues related to social justice. Study of descriptive and inferential statistics as applied in humanistic research. Consideration of how to generate evidence-based, statistically sound arguments, applying methods learned throughout the course to a collaborative project. Students learn statistical methods, R Studio environment and language, and how to communicate their arguments in cogent narratives supported by evidence. Letter grading.

**131. Digital Mapping and Critical Geographic Information Systems (4)** Seminar, three hours. Requisite: course 101 or consent of instructor. Introduction to digital mapping and critical geographic information systems. Study of basic data types including geographic, structured, and unstructured. Students engage with fundamental mapping practices such as geolocating structured data, working with open data through web mapping technologies, georeferencing historical maps, and creating location-based narratives and visualizations. Through project-based learning, students discover how to manage and apply data to wide range of digital mapping technologies. Consideration of how to incorporate these concepts into humanities and social sciences research. Letter grading.

**140. Coding for Humanities (4)** Seminar, three hours. Requisites: course 101. Introduction to coding, with focus on Python. Study of basic structural elements such as lists, if statements, dictionaries, loops, functions, and classes. Consideration of how to apply these concepts to research in humanities and social sciences, and project-based learning. Students discover how to manage and display data with added impact. Content and goals are guided by freedom to research more effectively and freedom of speech. Letter grading.

**145. Literary Texts and Literary Languages: Strategies of Analysis and Digital Tools (4)** (Same as Russian M145.) Lecture, three hours. Lectures and readings in English. Non-obligatory additional materials in Russian. Formal, quantitative, and computational methods for analysis of poetry and prose. Digital tools for analysis. P/NP or letter grading.

**150. Advanced Topics in Digital Humanities (4)** Seminar, three hours. Requisite: course 101. Introduction to advanced research methods or thematic issues in digital humanities such as database and visualization technologies, social media technologies, application programming interfaces, and digital mapping to acquire familiarity with particular set of technologies by learning practical research methods and theoretical issues to carry out advanced research in this area. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

**151. Advanced Topics in Urban Humanities (4)** Seminar, three hours. Introduction to advanced research topics in urban humanities. Looking at specific subject matters related to notion of spatial equity in context of Los Angeles, exploration of how certain spatial technologies such as geographic information systems (GIS) cartography, mobile telephony, real-time data collection, social media, digital databases, and interactive web platforms can be deployed to research and document urban experience. Familiarization with digital tools used to study urban issues, from affordable housing to access to public space and employment, to civic participation. Letter grading.

**187. Capstone Seminar in Digital Humanities (4)** Seminar, three hours. Requisite: course 101. Students are guided in development and realization of collaborative digital humanities research project. Students learn to develop and refine research question, carry out advanced research in digital humanities, and present results of their research to their peers. Students participate in structured trainings, work with classmates to select suitable research topics,

give weekly updates about their research process, and develop presentation of project. Librarians and members of Digital Research Consortium introduce students to available digital collections, archives, and other resources at UCLA. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Community or Corporate Internships in Digital Humanities (4)** Tutorial, two hours; fieldwork, eight hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

**196. Research Apprenticeship in Digital Humanities (4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

**198. Honors Research in Digital Humanities (4)** Tutorial, one hour. Requisite: course 101. Limited to juniors/seniors. Development and completion of significant research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Digital Humanities (2 to 4)** Tutorial, one hour. Requisite: course 101. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

## Graduate

**201. Introduction to Digital Humanities (5)** Seminar, three hours; laboratory, one hour. Introduction to field of digital humanities. Historical overview of field from its beginning in post-World War II era to present, highlighting major intellectual problems, disciplinary paradigms, and institutional challenges that are posed by digital humanities. Examination of major epistemological, methodological, technological, and institutional challenges posed by digital humanities through number of specific projects that address fundamental problems in creating, interpreting, preserving, and transmitting human cultural record. How digital technologies and tools, ranging from map visualizations and modeling environments to database structures and interface design, are arguments that make certain assumptions about, and even transform, objects of study. Letter grading.

**221. Data and Society (4)** (Same as Social Science M240.) Seminar, three hours. Introduction to way data and computing technologies increasingly play pivotal role in social life. Students pose critical questions about social impact of data, while also gaining literacy in engaging digital and data tools. Students learn to recognize historically and institutionally produced biases in data research and science. Engagement is encouraged with how to work with data for social justice aims. S/U or letter grading.

**250. Special Topics in Digital Humanities (4)** Seminar, three hours. Enforced requisite: course 201. Introduction to advanced research method or thematic issue in digital humanities, such as digital textual analysis, digital mapping database and visualization technologies, or social media technologies. Acquisition of familiarity with particular set of technologies by learning practical research methods and theoretical issues to carry out advanced research in this area. Examination of critiques of theoretical underpinnings of such technologies and issues that they raise. May be repeated for credit with topic change. Letter grading.

**299. Special Projects in Digital Humanities. (2 to 4)** Tutorial, one hour. Enforced requisite: course 201. Limited to and required of graduate students in Digital Humanities Graduate Certificate Program. Supervised research and investigation under guidance of faculty mentor. Culminating project required. May be repeated for maximum of 12 units. Letter grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, three hours. To be arranged with faculty member who directs study or research. S/U or letter grading.



# Disability Studies

## Disability Studies Courses

### Lower Division

**1. Construction of (Dis)ability and Ableism in U.S. (5)** Lecture, two hours; discussion, two hours. Examination of ways in which certain bodies and minds have been categorized, disabled, conceived of, oppressed, and liberated in U.S. over time. Using intersectional lens, exploration of origins of American eugenics movement, social construction of normalcy and (dis)ability, and ableism in its many forms (e.g., individual, legal, medical, cultural, financial). Students learn how to apply critical disability studies framework to evaluate relationships between race, ethnicity, language, gender, sexual orientation, income, and disability in relation to disablement and ableism. Covers key topics and theoretical frameworks in disability studies to give students foundational and conceptual knowledge needed to analyze social, political, and cultural issues from critical disability studies perspectives. P/NP or letter grading.

**10. Intersections of Art History and Disability Studies: Disability in Modern Art (5)** Lecture, four hours. Broad overview of presence of disability and its manifestations through modern art in the 19th and 20th centuries. Introduction of historical development and fundamental intellectual and ethical issues associated with representation of disability in arts and humanities. Investigation of complex relations between artistic and humanistic expression and this major facet of society and culture. Introduction of new methodology and language to build framework around how disability might fit into discourse of modern art as alternative way of knowing and how disability informs modern art by way of radical aesthetics of representation that challenges sociocultural norms. Consideration of how disability aesthetics informs photography, performance art, outsider art, and curatorial practices. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

### Upper Division

**101. Perspectives on Disability Studies (5)** Lecture, one hour; discussion, two hours. Not open for credit to students with credit for course 101W. Creation of critical framework for understanding concept of disability from sampling of disciplinary perspectives. Organized around productive and central tension in disability studies—between disability as lived subjective experience that is both individual and communal, and disability as objective, medical, legal, and sometimes stigmatized category. Students encouraged to make connections between units and to create their own perspectives on disability in field that defines itself by how it changes. Letter grading.

**101W. Perspectives on Disability Studies (5)** Lecture, one hour; discussion, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Not open for credit to students with credit for course 101. Creation of critical framework for understanding concept of disability from sampling of disciplinary perspectives. Organized around productive and central tension in disability studies—between disability as lived subjective experience that is both individual and communal, and disability as objective, medical, legal, and sometimes stigmatized category. Students encouraged to make

connections between units and to create their own perspectives on disability in field that defines itself by how it changes. Satisfies Writing II requirement. Letter grading.

**102. Disability and Violence (4)** Seminar, three hours. Relationship between disability and violence from three angles: (1) review of disproportionate incidence of violence committed against people with disabilities, whether specifically as form of hate crime or based on dependency and/or vulnerability that accompany some types of disability, (2) study of role of disability and particularly mental illness in representations of criminality and violence, and (3) disablement or emergent disability (injuries, illnesses, and impairments created by social inequity) as consequence of intersecting forms of racial, gender, sexual, and class subordination, or as result of state or interpersonal violence. Consideration of possible coalition-based strategies for challenging systemic subordination and prospects for improving disability-consciousness across social movement efforts and campaigns. P/NP or letter grading.

**103. Studies in Disability Literatures (5)** (Same as English M103.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of modes of disability in literature, with specific emphasis on thematic concerns. Topics may include introduction to disability studies; race, gender, and disability; disability narratives; etc. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**110. Disability and Popular Culture (4)** Lecture, four hours. Drawing from disability studies, media studies, and theories of representation, examination of increasing visibility of people with disabilities in popular culture. How disability is represented and who gets to represent it. Analysis and critique of representations of people with disabilities in late 20th and early 21st century cinema and television to understand functioning of representation in popular culture. Development of critical media literacy skills. P/NP or letter grading.

**111. Disability as Spectacle: Performing Nonnormative Bodies (4)** Lecture, two hours; studio, two hours. Examination through eyes of disability activists and artists interrogating how aspects of body get deemed nonnormative. Investigation of what it means to push against pressure to fit in, as well as how to contest invisibility of some disabilities that happen when normal bodies get defined visually. Use of this lens on disability to research and explore role that bodies play in political battles over who gets socially valued and who does not. P/NP or letter grading.

**112. Disability and Musical-Dramatic Arts: Representation, Embodiment, Themes, and Practices (5)** (Same as Musicology M112.) Lecture, four hours; discussion, one hour. Exploration of ways disability and impairment factor into musical and musical-dramatic creation and performance, considered historically and aspirationally in terms of representation, embodiment, thematics, and developing practices. P/NP or letter grading.

**113. Variable Topics on Music and Disability (4)** (Same as Musicology M113.) Seminar, four hours. Analysis and critique of depiction of disability and music. Topics may include introduction to disability studies; exploring work and creative strategies of disabled musicians; music technologies and instrument design; representation of disability in music; and more. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**114. Variable Topics in Performance and Disability Studies (4)** (Same as Theater M114.) Seminar, four hours. Analysis and critique of depiction of disability in theater. Topics may include introduction to disability studies; race, gender, and disability; representation of disability in theater; and more. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**115. Enforcing Normalcy: Deaf and Disability Studies (4)** (Same as American Sign Language M115.) Lecture, three hours. Exploration of historical, medical, social, political, philosophical, and cultural influences that have constructed categories of normalcy, disability, and deafness. Building on writing of Michel Foucault and critical work in field of disability studies, inquiry into institutions that have enforced standards of normalcy throughout 19th and 20th centuries to present. Primary attention to rise of medical authority in West, history of eugenics, and contemporary bioethics issues confronting disability and deaf communities. P/NP or letter grading.

**120. Special Topics on Race and Disability (4)** Lecture, four hours. Exploration of race and disability, with emphasis on lived realities of people of color with disabilities. Use of scholarly texts from disability studies, sociology, gender studies, or critical race studies to investigate and critique mechanisms and systems that shape race, ableism, and dominant/nondominant power dynamics. P/NP or letter grading.

**121. Topics in Gender and Disabilities (4)** (Same as Gender Studies M121.) Lecture, three and one half hours. Limited to juniors/seniors. Ways in which issues of disability are affected by gender, with particular attention to various roles, positions, and concerns of women with disabilities. Approach is intersectional, exploring how social categories of class, race, ethnicity, religion, age, sexuality, nationality, and citizenship affect and are affected by gender

and disability. Topics may include law (civil rights, nondiscrimination), representation (arts, literature), education, public policy, health. May be repeated for credit with topic and instructor change. P/NP or letter grading.

**122. Bodies in Antiquity (4)** (Same as Classics M149.) Lecture, three hours. Investigation of individuals and groups that compose ancient Greek and Roman societies and relationship they have with larger social body, with particular focus on marginalized or minority groups such as women, noncitizens (resident aliens and provincials), slaves, children, elderly, and disabled. Examination of ways these groups contribute to or detract from our understanding of ancient society as whole. May be repeated for credit with topic change. P/NP or letter grading.

**125. Exploring Intersections of Ability and Sexuality (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M125.) Lecture, three hours. Exploration of identity as means of understanding cultural formations, dominant/nondominant power dynamics, and systems of visual representation. Intersectional approach to explore how ability and sexuality intersect, overlap, and change notions of identity. Use of scholarly texts from disability studies, lesbian, gay, bisexual, and transgender studies, popular culture, performance, and film to investigate factors that shape ability and sexuality as basis for identity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**129. Theory, Policy, and Practice of Special Education: Implications for Educators and Advocates (4)** Lecture, three hours. Examination of issues of disability in K-12 schooling and social and historical contexts of special education policy, as well as its implementation. Focus on equity-related legal and policy issues in education, specifically those associated with disability, race, language, and gender and how these intersect. Consideration of landmark court decisions such as *Brown versus Board of Education* (1954) and *Board of Education versus Rowley* (1982), as well as key legislation such as Americans with Disabilities Act (ADA) and Individuals with Disabilities Education Act (IDEA). P/NP or letter grading.

**130. Disability Policy and Services in Contemporary America (4)** (Same as Gerontology M165 and Social Welfare M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

**131. Alternative Approaches to Language Acquisition (4)** Seminar, four hours. Examination of everyday experience of language delay, disorder, difference, and difficulty from disability studies perspective. Presentation of key concepts and terminology of culture, disability, and language use. Discussions and assignments critically evaluate findings on language acquisition by asking questions from disability studies about inclusion, individual- and socially constructed experience, and power. P/NP or letter grading.

**138XP. Applied Autism Intervention: Multidisciplinary Perspective (4)** (Formerly numbered 138SL.) Seminar, 90 minutes; fieldwork, six hours. Service-learning course for undergraduate students in Early Childhood Partial Hospitalization Program (ECPHP). Introduction to history, theory, and practice of autism interventions and social and cultural factors that determine how society and medical profession understand autism as diagnostic category. Study of processes involved in identifying autism as represented in fields of psychology, neuroscience, and disability studies. Review of social versus medical model of disability and analysis of dominant as well as counter discourse on autism. Overview of broader educational issues for children living with disabilities as well as parent perceptions. P/NP or letter grading.

**139. Perspectives on Autism and Neurodiversity (4)** (Same as Psychology M139.) Seminar, three and one half hours. Genealogy of autism as diagnostic category and cultural phenomenon from its historical roots as new, rare, and obscure condition in early 1940s to its current contested status as minority identity and/or global epidemic. Examination of material sourced from various fields and disciplines invested in autism, including psychology, neuroscience, arts and humanities, popular media, anthropology, activism, and critical autism studies. Students encounter and analyze multiple perspectives on autism and put them in conversation with one another. Attention paid to way people on spectrum define, explain, and represent their own experiences of autism and discussion of what ramifications of these multiple framings are in context of autism intervention strategy and disability policy today. Letter grading.

**145. Mental Disability Law (4)** Lecture, three hours. Examination of definitions and some characteristics of those conditions that legal systems recognize as mental disabilities. Review of evolution of these definitions through U.S. and Western histories, with focus on role conceptions of mental illness has played in various racial, gendered, and economic regimes. Exploration of primary approaches U.S. legal system takes to address needs, vulnerabilities, and rights of people with disabilities and of people with mental disabilities. Discussion of some key challenges and controversies affecting policy and practice in this area and varying strategies for engaging those challenges. P/NP or letter grading.

**148. Sociology of Mental Illness (4)** (Same as Sociology M148.) Lecture, three hours; discussion, one hour. Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of mental illness. P/NP or letter grading.

**149. Disability Rights Law (4)** (Same as Sociology M120.) Lecture, four hours. Examination of disability-related issues impacting people of all ages across wide spectrum of settings in both public and private sectors—from preschool to higher education, from military to workplace, and from intensely urban environments to online and virtual worlds. Topics range from persistent and recurring disputes to novel controversies fueled by new technologies and changing times. P/NP or letter grading.

**150. Human Rights, International Development, and Disability (4)** Lecture, three hours. Basic introduction to theories of human rights, sociology of development, and contemporary rights-based development theory and practice. International disability rights movement to serve as case study, following passage of U.N. Convention on Rights of Persons with Disabilities in 2006 to changes on ground in developing countries that are occurring today. Offered in summer only. P/NP or letter grading.

**157. Choreographing Disability (4)** (Same as Dance M157.) Seminar, four hours. Through study of range of performance by, featuring, or about people who identify as disabled, reading and discussion of range of writing about experiences of disability and process of making work about disability by key artists and thinkers. Introduction to concept of choreography as political/cultural idea broadly defined as scored movement and organization and behavior of bodies, as well as choreography as poetic form for expression of ideas, creative tool, or product. Viewing and discussion of work, and embodying ideas through movement and dance-making. P/NP or letter grading.

**161. Sports, Normativity, and Body (4)** (Same as Gender Studies M161.) Lecture, four hours. Since creation of International Olympic Committee in 1894, athletes with disabilities have had, and been denied, formal opportunities to compete with able-bodied athletes. Overview of some major topics of discussion concerning intersections of athletic competition and disability, addressing variety of perspectives and themes on disability and sport, such as passing, sports integration, competition versus charity, and masculinity. Sources include readings, film, television, and biographical writings that address sports, body and disability generally, and Special Olympics specifically. P/NP or letter grading.

**163A. Autism Media Laboratory (5)** Lecture, two hours; discussion, one hour. People with autism who are nonspeaking face challenges fully participating in their communities. Exploration of documentary filmmaking as catalyst to educate greater community on importance of inclusion of people with disabilities. Students work together with community teachers, autistic self-advocates who are nonspeaking or minimally speaking, to create documentary short films. Students explore issues related to autism and disability while gaining exposure to observational, interview-based, and participatory documentary shooting and editing techniques. Letter grading.

**163B. Autism Media Laboratory (5)** Lecture, two hours; discussion, one hour. Requisite: course 163A. People with autism who are nonspeaking face challenges fully participating in their communities. Exploration of documentary filmmaking as catalyst to educate greater community on importance of inclusion of people with disabilities. Students work together with community teachers, autistic self-advocates who are nonspeaking or minimally speaking, to create documentary short films. Students explore issues related to autism and disability while gaining exposure to observational, interview-based, and participatory documentary shooting and editing techniques. Letter grading.

**164A. Documentary Production for Social Change: Mobility in Los Angeles (5)** (Same as Urban Planning M164A.) Seminar, three hours; fieldwork, two hours. Exploration of documentary filmmaking as catalyst for social change, using daily commute in Los Angeles as case study. Introduction to issues of race, ethnicity, gender, disability, and class on experiences of commuting, access to public transportation, and car-based versus alternative (bike and pedestrian) forms of commuting. Exposure to observational, interview-based, and participatory documentary shooting and editing techniques, as well as social marketing strategies that are vital to documentary production and distribution. Letter grading.

**164B. Documenting Dis/Ability on Film (4)** Lecture, four hours. Nonfiction digital media is used as contemporary form of investigation or research or is attached to research projects, built into websites, used in campaigns for social and political activism, and exhibited at film festivals. Social-issue documentaries appear more frequently on cable, public television, and Internet. Examination of how powerful documentaries still rely on well-told stories by passionate filmmakers. P/NP or letter grading.

**166. Health-Care Ethics (4)** (Same as Society and Genetics M166.) Lecture, three hours; discussion, one hour. Consideration of critical ethical concepts as they apply to health-care practice, medical decision-making, and medical technology development and use. Consideration of concepts drawn from philosophy, literature and culture, and political history including freedom, equality, justice, vitality, knowledge, kinship, mercy, illness, and disability. Examination of how concept of human dignity should shape health-care decisions such as physician-aided dying or selective abortion; proper relationship between history and concept of human rights and distribution of medical resources; how political and ethical category equality should structure development and use of genetic editing; how health-care concept of patient autonomy relates to political concept of liberty or freedom; how to evaluate good life, or what philosophers call flourishing, in medical treatment decisions for individuals or development of therapies. P/NP or letter grading.

**171. Philanthropy: Confronting Challenges of Serving Disabled (5)** (Same as Honors Collegium M170.) Lecture, three hours. Enforced requisite: course 101 or 101W. Study of history, philosophy, and practice of philanthropy using lens of disability studies theory in conversation with important themes of charity, paternalism, and systems of dependency. Analysis of multiple perspectives of philanthropy to gain practical experience setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations serving people with disabilities. Letter grading.

**172. Care Work: Disability Justice and Health Care (2)** (Same as Nursing M172.) Lecture, one hour; discussion, one hour. Exploration of nature, history, models, and propositions of care, care work, disability, disability justice movement, and health care. Consideration of intersections, interdependence, and complexities of formal and informal care webs and care economies between caregivers and receivers, which includes kin, advocates, disability communities, and health professionals. Use of multi-media, scholarly texts, and theoretical frameworks from disability justice, disability studies, film, gender studies, health, labor studies, law, nursing, and public policy to investigate the concepts of care and care work. Letter grading.

**172XP. Care Work: Disability Justice and Health Care (3)** (Same as Nursing M172XP.) Seminar, one hour. Corequisite: course M172. Exploration of nature, history, models, and propositions of care, care work, disability, disability justice movement, and health care. Consideration of intersections, interdependence, and complexities of formal and informal care webs and care economies between caregivers and receivers, which includes kin, advocates, disability communities, and health professionals. Use of multi-media, scholarly texts, and theoretical frameworks from disability justice, disability studies, film, gender studies, health, labor studies, law, nursing, and public policy to investigate the concepts of care and care work. Emphasis on community engagement with observational and collaborative interaction and learning in governmental, non-profit, community-based organizations, or health-care networks of disability care. Letter grading.

**183. Being Human: Identity and Mental Illness (5)** (Same as Honors Collegium M183 and Society and Genetics M183.) Seminar, three hours. Exploration of relationship between identity and mental illness through different approaches to nature and treatment of mental disorder, from biomedical accounts of brain-based pathology (and identity) to Mad Pride movement emphasis on mental diversity. Enduring philosophical questions regarding personal identity, consciousness, selfhood and mind-body relationship are investigated through consideration of conditions such as dissociative identity disorder, trauma, psychosis, autism, and depression. P/NP or letter grading.

**187. Special Topics in Disability Studies (4)** Lecture, one hour; discussion, two hours (when scheduled). Variable topics in one area within disability studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Senior Research Seminars: Disability Studies (5)** Seminar, three hours. Enforced requisite: course 101 or 101W. Designed for advanced junior/senior Disability Studies minors. In-depth study of major themes in disability studies research. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. May be repeated for credit with topic change. Letter grading.

**191F. Topics in Gender and Disability (5)** (Same as Gender Studies M191F.) Seminar, three hours. In-depth study of major themes in disability studies and gender studies. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. May be repeated for credit with topic change. Letter grading.

**194. Capstone Research Seminar (2)** Seminar, two hours. Enforced requisite: course 195CE. Required of students pursuing Disability Studies minor. Integration of off-campus work with academic theories and concepts within field of disability studies. Students report on their internship experiences and analyze relationship between their internship and issues of policy, ethics, systemic responses to community needs, or personal and intellectual transformations. Students identify one faculty mentor and develop proposal for required capstone research project. Letter grading.

**195CE. Community and Corporate Internships in Disability Studies (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. Letter grading.

**196. Research Apprenticeship in Disability Studies (4)** Tutorial, one hour. Limited to junior/senior Disability Studies minors. Entry-level research apprenticeship under guidance of faculty mentors affiliated with Disability Studies minor. Collaboration with faculty mentors on their research in area related to disability studies. May be repeated for credit. Individual contract required. Letter grading.

**198A. Honors Research in Disability Studies (2)** Tutorial, one hour. Enforced requisite: course 101 or 101W. Course 198A is enforced requisite to 198B. Limited to juniors/seniors. Required capstone course to Disability Studies minor for students pursuing College Honors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Disability Studies (4)** Tutorial, one hour. Enforced requisite: course 198A. Limited to juniors/seniors. Required capstone course to Disability Studies minor for students pursuing College Honors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in Disability Studies. (2 to 8)** Tutorial, one hour. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199A. Directed Research in Disability Studies (2)** Tutorial, one hour. Enforced requisite: course 101 or 101W. Course 199A is enforced requisite to 199B. Limited to juniors/seniors. Required capstone course to Disability Studies minor. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 199B).

**199B. Directed Research in Disability Studies (4)** Tutorial, one hour. Enforced requisite: course 199A. Limited to juniors/seniors. Required capstone course to Disability Studies minor. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

**199C. Senior Project in Disability Studies. (2 to 8)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

# Earth, Planetary, and Space Sciences

## Earth, Planetary, and Space Sciences Courses

### Lower Division

**1. Introduction to Earth Science (5)** Lecture, three hours; laboratory, two hours; field days. Not open to students with credit for or currently enrolled in course 100. Elements of Earth science; study of Earth materials; nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology. Mandatory field trips introduce students to solving of geologic problems in field. P/NP or letter grading.

**2. Science in the Movies (4)** Lecture, two and one half hours; discussion, one hour. Introduction to Earth, planetary, and space sciences through film. Study of fundamental forces that shape Earth and other planetary bodies. Examination of how scientists mitigate natural disasters, solve environmental problems, and enable space exploration. P/NP or letter grading.

**3. Astrobiology (5)** Lecture, three hours; discussion, one hour. Origin, evolution, distribution, and future of life on Earth and in universe. Course material primarily from planetary and Earth sciences, paleontology and biology, astronomy, chemistry, and physics. P/NP or letter grading.

**5. Environmental Geology of Los Angeles (4)** Lecture, three hours; discussion, two hours; field trips. Geologic hazards and natural resources of greater Los Angeles region. Topics include Los Angeles geologic hazards such as earthquakes, landslides, and floods; Southern California oil fields; gold and gem mining in region; local beach processes; and Los Angeles water resource problems. Field trips to San Andreas fault, California aqueduct, active landslides, and historic gold mines. P/NP or letter grading.

**7. Perils of Space: Introduction to Space Weather (4)** (Same as Atmospheric and Oceanic Sciences M7.) Lecture, three hours; discussion, one hour. Concepts of plasma physics. Dynamic sun, solar wind, and Earth's magnetosphere and ionosphere. Space storms and substorms and their impacts on astronauts, spacecraft, and surface power and communication grids. P/NP or letter grading.

**8. Earthquakes (5)** Lecture, three hours; laboratory, one hour; one field day. Causes and effects of earthquakes. Plate motion, frictional faulting, earthquake instability, wave propagation, earthquake damage, and other social effects. Hazard reduction through earthquake forecasting and earthquake-resistant design. P/NP or letter grading.

**9. Solar System and Planets (4)** Lecture, three hours; discussion, one hour. Properties of sun, planets, asteroids, and comets. Astronomical observations relevant to understanding solar system and its origin. Dynamical problems, including examination of fallacious hypotheses. Meteoritic evidence regarding earliest history of solar system. Chemical models of solar nebula. Space exploration and its planning. P/NP or letter grading.

**10. Exploring Mars, Red Planet (4)** Lecture, three hours; discussion, one hour. History and future of Mars exploration, origin of planet, surface materials, and atmosphere. History of climate. Questions regarding water and life. Scientific and practical issues in mission design. P/NP or letter grading.

**13. Natural Disasters (5)** Lecture, three hours; discussion, one hour; one field day. Global urbanization together with historical demographic population shift to coastal areas, especially around Pacific Ocean's Ring of Fire, are placing increasingly large parts of this planet's human population at risk due to earthquakes, volcanos, and tsunamis. Global climate change combines with variety of geologic processes to create enhanced risks from catastrophic mass movements (e.g., landslides), hurricanes, floods, and fires. Exploration of physical processes behind natural disasters and discussion of how these natural events affect quality of human life. P/NP or letter grading.

**15. Blue Planet: Introduction to Oceanography (5)** Lecture, three hours; laboratory, two hours. Not open for credit to students with credit for or currently enrolled in Ecology and Evolutionary Biology 25. General introduction to geological, physical, chemical, and biological processes and history of Earth's global ocean system. P/NP or letter grading.

**16. Major Events in History of Life (5)** Lecture, three hours; laboratory, two hours. Designed for nonmajors. History of life on Earth as revealed through fossil record. P/NP or letter grading.

**17. Dinosaurs and Their Relatives (5)** Lecture, three hours; laboratory, two hours; one optional field trip. Designed for nonmajors. Exploration of biology, evolution, and extinction of dinosaurs and close relatives, in context of history of biosphere. Information from paleontology, biology, and geology. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Natural History of Southern California (5)** Lecture, two hours; laboratory, three hours; five field weekends. Identification, distribution, diversity of native plants and communities; identification and interpretation of rocks, minerals, and geologic features and geologic history of physiographic regions of Southern California. Emphasis on field-based learning. P/NP or letter grading.

**51. Mineralogy: Earth and Planetary Materials (4)** Lecture, three hours; laboratory, four hours. Recommended prerequisite: course 1, or any course from 3 through 17, 20, or Clusters 70A, and completion of chemistry requirement. Principles of mineralogy. Mineral structure and bonding and crystal chemistry, with focus on materials of interest for Earth and planetary sciences and major rock-forming minerals. Laboratory study of relationship between mineral structure and properties, including hand sample identification, microscopy (optical and electron), X-ray diffraction, and spectroscopy techniques. P/NP or letter grading.

**61. Geologic Maps (4)** Lecture, two hours; laboratory, three hours; five field days. Recommended prerequisite: course 1 (or any course from 3 through 17, 20, or Clusters 70A). Planning, creation, and interpretation of geologic maps, including both practical and philosophical problems that arise. Topographic and geologic mapping in the field. Interpretation of published maps in laboratory. P/NP or letter grading.

**71. Introduction to Computing for Geoscientists (4)** (Same as Atmospheric and Oceanic Sciences M71.) Lecture, four hours; outside computing study, six to 10 hours. Introduction to writing programs, visualization of geoscience data, and comparison with models. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Principles of Earth Science (4)** Lecture, three hours. Designed for nonmajors. Not open to students with credit for course 1. Fundamentals of physical geology and Earth history; major problems of geology, such as continental drift and development of large-scale features of Earth; physical and biological evolution. P/NP or letter grading.

**101. Earth's Energy: Diminishing Fossil Resources and Prospects for Sustainable Future (4)** Lecture, three hours; laboratory, two hours; two optional field trips. Preparation: one lower-division atmospheric sciences, chemistry, Earth sciences, or physics course. Earth's energy resources (fossil fuels and alternatives) from Earth science and sustainability perspective. P/NP or letter grading.

**103A. Igneous Petrology (5)** Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 51. Recommended: Chemistry 14B and 14BL, or 20B and 20L. Mineralogy, chemical composition, and field occurrence of igneous rocks with reference to their origin by melting in earth. Introduction to thermodynamics as applied to petrology. Formation of magma, its movement, eruption, crystallization, and chemical evolution. Petrologic structure of crust and mantle and its relation to seismology. Overview of petrological and chemical evolution of Earth, moon, and other planets from their origin to present. P/NP or letter grading.

**103B. Sedimentary Petrology (5)** Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 51. Recommended: course 61. Study of sedimentary rocks based on characteristics of sedimentary particles and dynamics of depositional processes. Lectures focus on development of depositional facies models, and laboratories emphasize recognition of sedimentary deposits from each major depositional facies. P/NP or letter grading.

**103C. Metamorphic Petrology (5)** Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 103A. Recommended: Mathematics 3B or 31B. Interpretation of metamorphic rocks based on field occurrence, mineralogical composition, texture, and application of physical and chemical principles. P/NP or letter grading.

**C106. Physical Geochemistry (4)** Lecture, three hours. Recommended: course 51. Basic principles of physical chemistry for geologic applications. Thermodynamics and kinetics of reactions among minerals, natural waters, and magmas; construction and interpretation of phase diagrams; case studies of important geochemical and environmental issues. Concurrently scheduled with course C206. P/NP or letter grading.

**C107. Geochemical Cycles (4)** Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of elements and their isotopes; distribution and chemistry of elements in Earth and its environment. Concurrently scheduled with course C207. P/NP or letter grading.

**C109. Isotope Geochemistry (4)** Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical and biological sciences students. Theoretical aspects of isotope behavior: stable and radiogenic isotopes. Principles of geochronology. Use of isotopes as tracers in crust and mantle processes. Stable isotopes as indicators of environment and paleoclimate. Concurrently scheduled with course C209. P/NP or letter grading.

**111. Stratigraphic and Field Geology (6)** Lecture, two hours; laboratory, three hours; fieldwork, eight hours per week. Requisite: course 61. Recommended: 112. Principles of stratigraphy; geologic mapping of selected area; preparation of geologic report. Letter grading.

**111G. Field Geology. (2 to 4)** Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Designed for graduate students. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation. S/U or letter grading.

**112. Structural Geology (5)** Lecture, three hours; laboratory, six hours. Recommended: course 61. Planar and linear structures at different scales in sedimentary, metamorphic, and igneous rocks. Faults and folds, their description, classification, and kinematic and dynamic analysis. Deformation, strength, fracture, and rheological properties of rocks. P/NP or letter grading.

**C113. Biological and Environmental Geochemistry (4)** Lecture, three hours. Recommended: at least one lower-division Earth, planetary, and space sciences course, Chemistry 14A and 14B (or 20A and 20B). Intended for junior/senior life and physical sciences students. Study of chemistry of Earth's surface environment and interplay between biology, human activity, and geology. Introduction to origin and composition of Earth, including atmosphere, crust, and hydrosphere. Examination of how these reservoirs are affected by biological cycles and feedbacks to biological evolution and diversity. Local and global-scale movements of biologically important elements like carbon, nitrogen, and phosphorus. Concurrently scheduled with course C213. P/NP or letter grading.

**CM114A. Aquatic Geomicrobiology: Metabolisms (4)** (Formerly numbered CM114.) (Same as Atmospheric and Oceanic Sciences CM114A.) Lecture, three hours. Recommended prerequisite: course C107 or Atmospheric and Oceanic Sciences M105. Study of fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems and how these processes interact with environment. Metabolisms include photoautotrophic (anoxygenic and oxygenic photosynthesis), chemoheterotrophic (fermentation and respiration of organic matter), photoheterotrophic (organic matter degradation with light), and chemoautotrophic (iron, nitrogen, manganese, methane, and sulfur oxidation) pathways. Introduction of principals of bioenergetics (adenosine triphosphate production, Gibbs free energy, chemiosmosis, thermodynamic calculations) and biological isotope fractionation. Concurrently scheduled with course CM214A. P/NP or letter grading.

**CM114B. Aquatic Geomicrobiology: Environments (4)** (Same as Atmospheric and Oceanic Sciences CM114B.) Lecture, three hours. Recommended prerequisite: course CM114A. Broad overview of aquatic geomicrobiological processes in diverse environmental settings (e.g., sediments, microbial mats, water column, wetlands, cold seeps, hydrothermal vents, deep biosphere), and how these processes drive element cycling on Earth. Concurrently scheduled with course CM214B. P/NP or letter grading.

**116. Paleontology (4)** Lecture, three hours; laboratory, three hours; field trips. Requisite: Life Sciences 7A or 7B. Review of major groups of fossil organisms and their significance in geology and biology. P/NP or letter grading.

**118. Advanced Paleontology (4)** (Same as Ecology and Evolutionary Biology M145.) Lecture, three hours. Requisite: course 116 or Ecology and Evolutionary Biology 110 or 117. Consideration of major factors that have influenced history of life, including analytical approaches to analyzing patterns in fossil record, nature of rock record, and contribution of data from stable isotopes, functional morphology, phylogenetics, and developmental biology. P/NP or letter grading.

**119. Continental Drift and Plate Tectonics (4)** Lecture, three hours; computer laboratory/discussion, one hour. Requisite: course 1, or any course from 3 through 17, 20, or Clusters 70A. Designed for juniors/seniors in physical sciences. Exploration of history and phenomenology of plate tectonics theory, with particular focus on observables and kinematics. Evidence supporting plate tectonics theory (magnetic anomalies, seismicity, gravity). Tectonic, igneous, and metamorphic processes at plate boundaries. Focus on plate kinematics both past and present and learn how to compute and plot velocities. Exploration of plate dynamics including driving mechanism and convection. P/NP or letter grading.

**120. Rubey Colloquium: Major Advances in Earth, Planetary, and Space Sciences (4)** Lecture, three hours. Designed for juniors/seniors. Lectures on major advances in Earth science offered by distinguished authorities (including regular faculty members). Supervision of continuity and assessment of student performance by faculty member. Content varies from year to year. If laboratory work is required, course 199 must be taken concurrently. P/NP or letter grading.

**121. Advanced Field Geology (4)** Lecture, two hours. Requisites: courses 61, 103A, 111, 112. Problems in regional geology and field research; preparation of written geologic reports. P/NP or letter grading.

**121F. Advanced Field Geology: Fieldwork (4)** Fieldwork, 20 hours. Advanced techniques in field geologic mapping and preparation of geologic maps and cross-sections, including igneous, metamorphic, and sedimentary terrains. P/NP or letter grading.

**C122. Introduction to Seismology (4)** (Formerly numbered 122.) Lecture, three hours; discussion, two hours. Requisites: Mathematics 31A, 31B, 32A, Physics 1A (or 1AH), 1B (or 1BH). Recommended: course M71, Mathematics 33B. Earth mantle and core. Elasticity, seismic wave equation, ray theory, travel time inversion, surface waves, free oscillations. Earthquakes and source theory. Concurrently scheduled with course C222. P/NP or letter grading.

**123. Geosciences Outreach (4)** Lecture, two hours; discussion, two hours; field days. Recommended prerequisites: at least three college-level life sciences or physical sciences courses. Introduction to pedagogical approaches and methods used in geosciences community to educate demographically diverse populations, including K-12 through higher-education audiences and general public. Focus on development of motivational and public communication skill sets as practiced at outreach events and demonstrations, including communication of science in multicultural settings. Active participation required in minimum of three scheduled outreach events over course of term, providing perspective and basis for follow-up discussions on critical geosciences literacy at local, state, and national levels. Letter grading.

**125. Volcanoes (4)** Lecture, three hours; laboratory, three hours; field trip(s). Requisite: course 1. Recommended: course 103A, Physics 1A or 1AH or 6A. Types of volcanism. Physics of magma chambers, volcanic plumbing, explosive and effusive eruptions as illustrated by historical examples. Practical methods of volcano monitoring, with field trip. P/NP or letter grading.

**C126. Advanced Petrology (4)** Lecture, three hours; laboratory, three hours; field trips. Enforced prerequisite: course 103A. Understanding genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C226. P/NP or letter grading.

**133. Historical and Regional Geology (4)** Lecture, three hours; discussion, two hours; field trips. Recommended prerequisites: courses 61, 112. Principles of historical geology. Physical evolution of Earth, especially North America. One area of Earth to be investigated in detail, with emphasis on its geologic evolution through time. Letter grading.

**136A. Applied Geophysics (4)** Lecture, three hours; laboratory, three hours. Requisites: course M71; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 4AL, and 4BL, or 5A and 5B. Recommended: course M171. Methods and knowledge involved in investigation of near-surface geophysics. Covers gravity fields, wave equations, seismic ray theory, reflection and refraction, seismic interpretation, basic earthquake source theory, and introduction to magnetic fields and electrical resistivity. P/NP or letter grading.

**136B. Applied Geophysics (4)** Lecture, three hours; laboratory/discussion, one hour. Preparation: knowledge of Python or MATLAB. Requisites: courses M71, 136A. Recommended: course M171. Principles and techniques of ex-

ploration for mineral deposits using natural and artificial electric and magnetic fields. Methods include self potential, resistivity, induced polarization, electromagnetics, magnetotellurics, magnetics. P/NP or letter grading.

**136C. Field Geophysics (6)** Lecture, two hours; fieldwork, three weekends. Requisites: courses M71, 136A. Recommended: course M171. Application of seismic, gravimetric, magnetic, electrical, and other geophysical methods to geologic and engineering problems. Practical aspects of geophysical exploration, including planning, data collection, data reduction, and interpretation. P/NP or letter grading.

**137. Petroleum Geology (4)** Lecture, three hours. Requisites: courses 61, 111. Geology applied to exploration for and production of natural gas and petroleum; techniques of surface and subsurface geology; problems of petroleum geology. P/NP or letter grading.

**139. Engineering and Environmental Geology (4)** Lecture, three hours; discussion, one hour. Requisite: course 1 or 100. Recommended: course 111. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction, and control or abatement of subsidence, landslides, earthquakes, and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes. P/NP or letter grading.

**140. Introduction to Fluid Dynamics (4)** (Same as Atmospheric and Oceanic Sciences M120.) Lecture, three hours; discussion, one hour. Recommended: Physics 32. Fluid statics and thermodynamics. Kinematics. Conservation laws and equations of fluid motion. Circulation theorems and vorticity dynamics. Rotating frame. Irrotational flow. Letter grading.

**C141. Basin Analysis (4)** Lecture, three hours; laboratory, three hours. Requisites: courses 103B, 111. Mechanisms of sedimentary basin development, flexural and thermal subsidence, isostasy, subsidence analysis, quantitative basin modeling, sediment provenance, tectonic settings. Concurrently scheduled with course C241. P/NP or letter grading.

**C143. Advanced Physical Sedimentology (4)** Lecture, three hours; fieldwork, three hours. Requisite: course 61 or equivalent. Advanced topics related to sediments, sedimentary rocks, and information that can be extracted from each. Interpretation of depositional environment from complex sedimentary structures and textures. Includes field and lecture components, and builds on previous sedimentology basics. Concurrently scheduled with course C243. P/NP or letter grading.

**150. Remote Sensing for Earth Sciences (4)** Lecture, three hours. Recommended requisite: course 61. Designed for juniors/seniors and graduate students. Remote sensing related to development of natural resources. Characteristics of electromagnetic spectrum and review of remote sensing devices. Applicability to land-use classification, soil survey, urban studies, vegetation classification; emphasis on geologic interpretation of imagery. P/NP or letter grading.

**152. Physics of Earth (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1A, 1B, and p1C (or 1AH, 1BH, and p1CH). Recommended: course 1 or 8. Crust-to-core tour of Earth and physics used to explore it. Isostasy, plate tectonics, mantle convection, and geodynamo as discovered with tools of elasticity, seismology, fluid mechanics, and thermodynamics. P/NP or letter grading.

**153. Oceans and Atmospheres (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 30A and 30B, or Mathematics 31A, 31B, and 32A; and Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 5A, 5B, and 5C. Physics of Earth's oceans and atmosphere; biogeochemical cycles, atmospheric radiation and climate, energetics and dynamics of oceanic and atmospheric circulation systems. P/NP or letter grading.

**154. Solar Terrestrial Physics (4)** Lecture, three hours; discussion, one hour. Requisites or corequisites: Physics 1A, 1B, 1C. Particle and electromagnetic emissions from the sun under quiet and disturbed conditions. Solar wind. Magnetospheres and ionospheres of Earth and other planets. Geomagnetic phenomena and aurora. P/NP or letter grading.

**155. Planetary Physics (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Formation of solar nebula; origin of planets and their satellites; comets, asteroids, and meteorites; celestial mechanics and dynamics; physics of planetary interiors, surfaces, and atmospheres. P/NP or letter grading.

**156. Introduction to Plasma Science and Engineering (4)** (Same as Electrical and Computer Engineering M185 and Physics M122.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: Electrical and Computer Engineering 101A or Physics 110B. Senior-level introductory course on electrodynamics of charged particles and their collective behavior in plasmas in laboratory, near-Earth space and astrophysical settings. Covers

selected applications taken from fusion energy, space weather, materials processing, generation of coherent radiation and particle accelerators. Letter grading.

**C160. Field Seminar. (2 to 6)** Seminar, three hours; discussion, one hour; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum that varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. May be repeated for credit. Concurrently scheduled with course C260. P/NP or letter grading.

**C162. Application of Remote Sensing in Field (4)** Fieldwork, five hours; laboratory, two hours. Requisite: course 150. Application of remote-sensing techniques to field situations. Digital analysis and interpretation of near-infrared, thermal-infrared, and microwave data from satellites and aircraft. Field observation of study site in California desert for testing hypotheses during week between Winter and Spring Quarters. Concurrently scheduled with course C262. P/NP or letter grading.

**C166. Tectonic Geomorphology (4)** (Formerly numbered 165.) Lecture, three hours. Recommended: course 61, Mathematics 31A. Interactions between tectonic, climate, and surface processes shape landscapes over days to millions of years. Focus on quantifying how tectonic and surface processes interact to govern landscape evolution. How landscapes can provide insights into physical and chemical surface processes, including bedrock weathering, soil formation, hillslope transport, and river and glacial erosion. How tectonics, climate, and underlying lithology may influence those processes in landscapes. Concurrently scheduled with course C266. P/NP or letter grading.

**171. Advanced Computing in Geosciences (4)** (Formerly numbered 171.) (Same as Atmospheric and Oceanic Sciences M171.) Lecture, four hours. Requisites: course M71, Mathematics 3A, 3B, and 3C (or 31A and 31B). Misfit modeling and quantitative comparisons of acquired data sets and theory. Forward modeling from fundamental equations. Examples, experiments, and exercises from disciplines within geosciences. P/NP or letter grading.

**CM173. Earth Process and Evolutionary History (6)** (Same as Ecology and Evolutionary Biology CM173.) Lecture, four hours; laboratory, three hours. Requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, and 4, or 7A, 7B, and 7C (or 7A and introductory course in geology). Exploration of relationship between physical processes, such as tectonics and climate, and how they affect surface and impact biology of Earth. Study of evolution of universe, Earth, and life, with integration of history of science, including Darwinian evolution and plate tectonics revolutions. Study of formation of matter offers tools to understand geologic process of climate and ecology of Earth. Past climate change to examine expected future human-influenced climate. Consideration of major events in history of life on Earth. Data and methods from geology, genetics, and geochemistry are integrated to reconstruct past events. This reveals how Earth processes shaped life and how life shaped Earth. Concurrently scheduled with course CM273. Letter grading.

**C179. Search for Extraterrestrial Intelligence (SETI) (4)** Lecture, two hours; laboratory, two hours. Recommended: course 71 or Computer Science 31 or Program in Computing 10A, Mathematics 31B, Physics 1C or 5C. Project-based study with focus on the search for extraterrestrial intelligence (SETI), with material from astronomy, computer science, mathematics, signal processing, and statistics. Design of observational program, acquisition of telescopic data, development of algorithms to analyze data, and presentation of results. Introduction to the abundance and characteristics of extrasolar planetary systems; radio astronomy, including wave propagation and Doppler shift; signal processing, including sampling theory and Fourier transforms; random processes, including Gaussian and binomial statistics; and algorithm development. Concurrently scheduled with course C279. P/NP or letter grading.

**187. Careers in Earth System, Environment, and Space Sciences (1)** (Same as Atmospheric and Oceanic Sciences M187 and Environment M187.) Seminar, one hour. Examination of central role of science in understanding and addressing grand challenges in climate, earth and environment, and space exploration through seminars given by scientists, engineers, managers, and entrepreneurs from national laboratories and industry. Includes tour of National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). Students engage speakers on science, career preparation, opportunities for undergraduate internships, and building fulfilling careers. P/NP or letter grading.

**188. Special Topics in Earth, Planetary, and Space Sciences (4)** Lecture/laboratory, to be arranged. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty

mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**193A. Current Research in Earth, Planetary, and Space Sciences (1)** Seminar, one hour. Limited to undergraduate Earth, Planetary, and Space Sciences Department majors and minors. Study of current topics in Earth, planetary, and space sciences, including participation in weekly department colloquium. May be repeated for credit. P/NP grading.

**193B. Current Research in Earth, Planetary, and Space Sciences (1)** Seminar, one hour. Limited to undergraduate Earth, Planetary, and Space Sciences Department majors and minors. Study of current topics in Earth, planetary, and space sciences, including participation in weekly department colloquium. May be repeated for credit. P/NP grading.

**193C. Current Research in Earth, Planetary, and Space Sciences (1)** Seminar, one hour. Limited to undergraduate Earth, Planetary, and Space Sciences Department majors and minors. Study of current topics in Earth, planetary, and space sciences, including participation in weekly department colloquium. May be repeated for credit. P/NP grading.

**C194. Research Topics in Earth, Planetary, and Space Sciences (1)** Research group meeting, one to three hours. Designed for departmental students participating in research group. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. Concurrently scheduled with course C296. P/NP grading.

**198. Honors Research in Earth, Planetary, and Space Sciences (4)** Tutorial, two hours. Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of Earth, planetary, and space sciences. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty mentor. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Earth, Planetary, and Space Sciences (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Introduction to Geophysics and Space Physics I: Solid Earth and Planets (4)** Lecture, three hours. Requisites: Physics 32, 105A, 110A, 112. Geochemistry, cosmochemistry, and petrology; geotectonics; gravity field; seismology; heat transfer, thermal and mechanical evolution of mantle; core and geomagnetism; lunar and planetary interiors. S/U or letter grading.

**200B. Introduction to Geophysics and Space Physics II: Oceans and Atmospheres (4)** Lecture, three hours. Requisites: Physics 32, 105A, 110A, 112. Evolution and chemistry of atmosphere and oceans. Radiative transfer, greenhouse gasses, global warming plus climate change. Dynamics of the atmosphere and oceans plus global circulation. Applications to Earth, other solar system bodies, and extrasolar planetary systems. S/U or letter grading.

**200C. Introduction to Geophysics and Space Physics III: Plasmas—Aeronomy and Interplanetary Medium (4)** Lecture, three hours. Requisites: Physics 105A, 110B, 112, 131. Solar surface features, heating and expansion of corona, solar wind, plasma and magnetic fields, interaction of solar wind with Earth, magnetospheric phenomena. S/U or letter grading.

**200D. Planetary Surfaces (4)** Lecture, three hours. Introduction to basic physical processes (both exogenic and endogenic) shaping solid surfaces in solar system and description of their optical and thermophysical properties, with emphasis on simple physics-based approach. Discussion of current literature. S/U or letter grading.

**200E. Planetary Origins and Evolution (4)** Lecture, four hours. Designed for graduate students who are interested in origins of planetary systems and history of solar system. Open to advanced undergraduate students with consent of instructor. Provides background needed to understand and/or participate in research related to formation and evolution of solar system and of other planetary systems. Description of star/planet formation process and subsequent evolution of planetary systems by integrating observations and theory. Fosters interdisciplinary knowledge and communication between Departments of Earth, Planetary, and Space Sciences and Physics and Astronomy graduate students and faculty members. S/U or letter grading.

**201. Classical Mechanics (4)** Lecture, three hours. Kinematics, variational principles and Lagrange equations, rotational dynamics. Hamilton equations of motion, linear and nonlinear perturbation theory, applications to solar system. S/U or letter grading.

**202. Continuum Mechanics (4)** Lecture, three hours. Kinematics and dynamics of continuous media. Properties of stress, strain, and rate-of-strain tensors. Conservation laws. Elasticity and viscosity. Heat transfer, boundary layers, and dynamical similarity. S/U or letter grading.

**203. Numerical Methods for Geosciences (6)** Lecture, four hours. Preparation: knowledge of programming language. Requisite: Mathematics 33B. Computational precision and algorithms, linear algebra, nonlinear equations, functional approximation, integration, ordinary and partial differential equations, spectral and finite element methods, parallel computing. Sample programming exercises from Earth and space sciences. Letter grading.

**205. Inverse Theory and Data Interpretation (4)** Lecture, three hours. Requisites: Mathematics 115A, 170A, 170B, 171. Inverse modeling problem—determination of model parameters consistent with experimental data, considering effects of random errors and nonuniqueness. Emphasis on linear and quasi-linear problems; nonlinear problems also discussed. Tools used include matrix theory, quadratic forms, orthogonal rotations, statistics, principal axis transformation for rectangular matrices, Bachus/Gilbert resolving kernels, and Lagrange multipliers. Examples from broad range of physical sciences. S/U or letter grading.

**C206. Physical Geochemistry (4)** Lecture, three hours. Recommended: course 51. Basic principles of physical chemistry for geologic applications. Thermodynamics and kinetics of reactions among minerals, natural waters, and magmas; construction and interpretation of phase diagrams; case studies of important geochemical and environmental issues. Concurrently scheduled with course C106. Additional independent research project and oral presentation required of graduate students. S/U or letter grading.

**C207. Geochemical Cycles (4)** Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of elements and their isotopes; distribution and chemistry of elements in Earth and its environment. Concurrently scheduled with course C107. Additional homework and class presentation required of graduate students. S/U or letter grading.

**C209. Isotope Geochemistry (4)** Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical and biological sciences students. Theoretical aspects of isotope behavior: stable and radiogenic isotopes. Principles of geochronology. Use of isotopes as tracers in crust and mantle processes. Stable isotopes as indicators of environment and paleoclimate. Concurrently scheduled with course C109. Additional literature survey, that may result in class presentation, expected of graduate students. S/U or letter grading.

**210. Geochemical Kinetics: Thermochronometry (4)** Lecture, three hours; discussion, one hour. Designed for graduate physical or biological sciences students. Theoretical basis and application of thermochronometry: derivation of diffusion equation and methods of solution, relationship between heat and mass diffusion and their simultaneous solution, Boltzmann/Matano analysis, multicomponent diffusion, closure theory;  $^{40}\text{Ar}/^{39}\text{Ar}$  systematics and interpretive models, multidiffusion domain theory, petrological applications. Letter grading.

**211. Mathematical Methods of Geophysics (4)** Lecture, four hours. Requisites: Physics 105A, 110A, 112, 131. Recommended: Physics 132. Designed to provide mathematical background required for students pursuing PhD in



Geophysics and Space Physics, as well as related programs in department. Extensive survey of these methods, with focus on geophysical applications consistent with needs that geophysics students encounter in their research. Letter grading.

**C213. Biological and Environmental Geochemistry (4)** Lecture, three hours. Recommended: at least one lower-division Earth, planetary, and space sciences course, Chemistry 14A and 14B (or 20A and 20B). Intended for graduate life and physical sciences students. Study of chemistry of Earth's surface environment and interplay between biology, human activity, and geology. Introduction to origin and composition of Earth, including atmosphere, crust, and hydrosphere. Examination of how these reservoirs are affected by biological cycles and feedbacks to biological evolution and diversity. Local and global-scale movements of biologically important elements like carbon, nitrogen, and phosphorus. Concurrently scheduled with course C113. S/U or letter grading.

**CM214A. Aquatic Geomicrobiology: Metabolisms (4)** (Formerly numbered CM214.) (Same as Atmospheric and Oceanic Sciences CM237A.) Lecture, three hours. Recommended prerequisite: course C107 or Atmospheric and Oceanic Sciences M105. Study of fundamental geomicrobiological metabolisms and biogeochemical reactions occurring in aquatic systems and how these processes interact with environment. Metabolisms include photoautotrophic (anoxygenic and oxygenic photosynthesis), chemoheterotrophic (fermentation and respiration of organic matter), photoheterotrophic (organic matter degradation with light), and chemoautotrophic (iron, nitrogen, manganese, methane, and sulfur oxidation) pathways. Introduction of principals of bioenergetics (adenosine triphosphate production, Gibbs free energy, chemiosmosis, thermodynamic calculations) and biological isotope fractionation. Concurrently scheduled with course CM114A. S/U or letter grading.

**CM214B. Aquatic Geomicrobiology: Environments (4)** (Same as Atmospheric and Oceanic Sciences CM237B.) Lecture, three hours. Recommended prerequisite: course CM214A. Broad overview of aquatic geomicrobiological processes in diverse environmental settings (e.g., sediments, microbial mats, water column, wetlands, cold seeps, hydrothermal vents, deep biosphere), and how these processes drive element cycling on Earth. Concurrently scheduled with course CM114B. S/U or letter grading.

**217. Molecular Evolution (4)** (Same as Ecology and Evolutionary Biology M231.) Lecture, two hours; discussion, two hours. Series of advanced topics in molecular evolution, with special emphasis on molecular phylogenetics. Topics may include nature of genome, neutral evolution, molecular clocks, concerted evolution, molecular systematics, statistical tests, and phylogenetic algorithms. Themes may vary from year to year. May be repeated for credit. S/U or letter grading.

**219. Planetary and Orbital Dynamics (4)** Lecture, four hours. Planetary rotations, satellite orbits, and tidal dissipation; planetary orbital system; resonance effects and chaos; spin-orbit and orbit-orbit coupling; planetary rings. S/U or letter grading.

**220. Principles of Paleobiology (4)** Lecture/discussion, three hours. Limited to graduate science students. Open to qualified undergraduate biological and physical sciences students with consent of instructor. Current and classic problems in paleobiology, with emphasis on interdisciplinary problems involving aspects of biology, geology, organic geochemistry, and cosmology. Content varies from year to year. May be repeated for credit. S/U or letter grading.

**221. Field Geology (4)** Lecture, one hour; discussion, one hour; fieldwork, 10 days. Enforced prerequisite: course 121F. Planning, execution, and presentation of geologic mapping projects at professional level. Resolution of problems in Southern California geology from synthesis of new and published research. Field area varies from year to year. May be repeated for credit. S/U or letter grading.

**C222. Introduction to Seismology (4)** (Formerly numbered 222.) Lecture, three hours; discussion, two hours. Requisites: Mathematics 31A, 31B, 32A, Physics 1A (or 1AH), 1B (or 1BH). Recommended: course M71, Mathematics 33B. Earth mantle and core. Elasticity, seismic wave equation, ray theory, travel time inversion, surface waves, free oscillations. Earthquakes and source theory. Concurrently scheduled with course C122. S/U or letter grading.

**224A. Elastodynamics (4)** (Same as Mechanical and Aerospace Engineering M257A.) Lecture, four hours. Requisites: Mechanical and Aerospace Engineering M256A, M256B. Equations of linear elasticity, Cauchy equation of motion, constitutive relations, boundary and initial conditions, principle of energy. Sources and waves in unbounded isotropic, anisotropic, and dissipative solids. Half-space problems. Guided waves in layered media. Applications to dynamic fracture, nondestructive evaluation (NDE), and mechanics of earthquakes. Letter grading.

**225. Physics and Chemistry of Planetary Interiors (4)** Lecture, four hours. Chemical compositions of Earth and planets; high-pressure and temperature effects, phase transitions, and equations of state; variations of density and temperature with depth; thermal and compositional evolution. S/U or letter grading.

**C226. Advanced Petrology (4)** Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Designed for graduate students. Understanding genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C126. Graduate students required to read more recommended references, make class presentations on particular topics resulting from that reading, and lead seminar-type discussions on their selected topics. S/U or letter grading.

**227. Mars (4)** Lecture, three hours. Limited to graduate students. Results of recent and ongoing missions to Mars are revising many aspects of our understanding of planet and its history. Study highlights major revolutions in thinking about planet, and provides comprehensive overviews as well as current controversies related to Mars' core and magnetism, thermal evolution and volcanism, geology and cratering history, volatiles and climate, atmosphere and its interaction with space environment, and potential pre-biological and biological history. S/U or letter grading.

**228. Introduction to Planetary Dynamos (4)** Lecture, three hours; laboratory/discussion, 90 minutes. Requisites: courses 200A, 200B, 200C. Designed for graduate students. Basic principles of planetary dynamo generation. Planetary core dynamics and core convection; mean field dynamo theory; kinematic dynamo theory; survey of modeling techniques and results. S/U or letter grading.

**229. Planetary Atmospheres and Climates (4)** (Same as Atmospheric and Oceanic Sciences M210.) Lecture, three hours. Recommended: Physics 1C. Planetary atmospheric structure and composition, radiative transfer, and climate dynamics. Topics include origin and evolution of atmospheres, paleoclimate of Earth and Mars, atmospheric thermodynamics, plane-parallel radiative transfer, climate dynamics, climate forcings/feedbacks, bifurcation, and climate hysteresis. S/U or letter grading.

**230. X-Ray Crystallography (4)** Lecture, three hours; laboratory, three hours. Requisite: course 51. Point, translation, and space group symmetry, diffraction of X-ray, reciprocal lattice theory, single crystal X-ray methods, diffraction symmetry and elementary crystal structure analysis. S/U or letter grading.

**231. Crystal Chemistry and Structure of Minerals (4)** Lecture, three hours; laboratory, three hours. Requisite: course 51. Bonding, interatomic configurations, polymorphic transformations, isotypism, thermal and positional disorder; survey of structures of common minerals, and relation of physical and chemical properties to crystal structure. S/U or letter grading.

**233. Mineral Physics and Equation of State (4)** Lecture, three hours. Interrelationship of physical properties of rock-forming minerals: optical reflectivity, refraction index, sound velocity, elastic constants, specific heat, and thermal expansivity. Determination of pressure, volume, and temperature relationships and planet-forming compounds. Variation of elastic constants with temperature and pressure. Application of shock-wave experiments to equations of state. S/U or letter grading.

**234. Petrologic Phase Equilibria (4)** Lecture, three hours; discussion, three hours. Requisites: course 51, Chemistry 110B. Principles governing homogeneous and heterogeneous equilibria, with selected applications to mineral stability relations in igneous and metamorphic rocks (fractional crystallization, partial melting, hydrothermal solutions, element partitioning in coexisting phases). S/U or letter grading.

**235A. Current Research in Geochemistry (1)** Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students stressing current research in Earth and planetary chemistry. May be repeated for credit. S/U grading.

**235B. Current Research in Geochemistry (1)** Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students stressing current research in Earth and planetary chemistry. May be repeated for credit. S/U grading.

**235C. Current Research in Geochemistry (1)** Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students stressing current research in Earth and planetary chemistry. May be repeated for credit. S/U grading.

**237. How to Write and Publish Scientific Papers (4)** (Same as Atmospheric and Oceanic Sciences M238.) Lecture, three hours. Recommended preparation: planning to prepare or in the process of preparing manuscripts. Introduction to process of scientific manuscript writing and publishing. Offers insights into fun and frustration of manuscript writing, important rules for manuscript structuring and scientific language, and advice on how to deal with review

process. Students gain familiarity with general principles of successful publishing process. Addresses different stages of manuscript writing and publishing by answering when are data ready for publishing, where to publish, how to structure manuscript, best way to present data, how to properly get out message, which writing ethics to consider, how to effectively use citation program, how to communicate with reviewers and editors, and efficient ways to manage coauthors. S/U or letter grading.

**238. Metamorphic Petrology (4)** Lecture, three hours; laboratory, six hours. Preparation: one introductory petrology and petrography course. Interpretation of metamorphic rocks in light of observation, theory, and experiment. Geological relations, petrographic evidence, metamorphic zoning, thermodynamics of phase equilibria, projections, chemographic relationships, use of piezobirefringent haloes, Rayleigh depletion model, isotopic fractionation, environmental factors of metamorphism. Laboratory study of representative metamorphic rocks and suites of rocks selected to illustrate topics discussed in lectures. S/U or letter grading.

**240. Space Plasma Physics (4)** Lecture, three hours. Requisite: course 200C or Physics 210A. Physics of plasmas in space, including treatments based on magnetohydrodynamics and kinetic theory. Applications to solar or planetary winds, steady-state magnetospheres, magnetospheric convection, substorm processes, magnetic merging, field-aligned currents and magnetosphere/ionosphere coupling, ring current dynamics, and wave particle instabilities. S/U or letter grading.

**C241. Basin Analysis (4)** Lecture, three hours; laboratory, three hours. Requisites: courses 103B, 111. Mechanisms of sedimentary basin development, flexural and thermal subsidence, isostasy, subsidence analysis, quantitative basin modeling, sediment provenance, tectonic settings. Concurrently scheduled with course C141. S/U or letter grading.

**242. Sandstone Petrology (4)** Lecture, two hours; laboratory, four hours. Requisite or corequisite: course C141. Petrographic study of sandstones, with emphasis on provenance, petrofacies, and paleotectonic reconstructions. S/U or letter grading.

**C243. Advanced Physical Sedimentology (4)** Lecture, three hours; fieldwork, three hours. Requisite: course 61 or equivalent. Advanced topics related to sediments, sedimentary rocks, and information that can be extracted from each. Interpretation of depositional environment from complex sedimentary structures and textures. Includes field and lecture components, and builds on previous sedimentology basics. Concurrently scheduled with course C143. S/U or letter grading.

**244. Tectonics of Sedimentary Basins (4)** Lecture, two hours; discussion, two hours; field trips. Requisites: courses 103B, 119. Recommended: course C141. Plate-tectonic settings of sedimentary basins. Basin analysis, stratigraphy, paleoenvironments, sedimentology, and related subjects in context of plate-tectonic controls on basin evolution. S/U or letter grading.

**245A. Current Research in Geology (1)** Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students on current research in tectonics. May be repeated for credit. S/U grading.

**245B. Current Research in Geology (1)** Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students on current research in tectonics. May be repeated for credit. S/U grading.

**245C. Current Research in Geology (1)** Seminar, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by staff, outside speakers, and graduate students on current research in tectonics. May be repeated for credit. S/U grading.

**248. Advanced Structural Geology (4)** Lecture, three hours; discussion, two hours. Requisite: course 111. Principles governing fracture, folding, and flow of rocks; solutions of structural problems at various scales; regional tectonic problems. S/U or letter grading.

**251. Seminar: Mineralogy (4)** Seminar, three hours. Examination of groups of rock-forming minerals (e.g., feldspars), integrating such aspects as crystal structure, crystal chemistry, phase equilibria, and petrogenesis. S/U or letter grading.

**252. Seminar: Geochemistry (4)** Seminar, two hours; discussion, two hours. Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of upper mantle, geochronology, cosmochronology, and cosmochemistry. S/U or letter grading.

**253. Seminar: Petrology (4)** Seminar, three hours. Problems of igneous or metamorphic petrology: methods of evaluating physical conditions of metamorphism; diffusion in mineralogic systems; origin of ultramafic rocks and problems of mantle; element fractionation among coexisting phases; other current subjects in field. S/U or letter grading.

**255. Seminar: Structural Geology and Tectonics (4)** Seminar, three hours. Flow and fracture in Earth's crust from microscopic to continental scale and in experiments. Examples may include metamorphic terranes, glaciers, plutons, volcanoes, and consolidated or unconsolidated sediments. Modern concepts of oceanic basins; processes leading to segregation of continental-type rocks. S/U or letter grading.

**256. Seminar: Geophysics (4)** (Formerly numbered 282.) Seminar, three hours. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in Earth physics. Content varies from year to year. May be repeated for credit. S/U or letter grading.

**257. Seminar: Paleontology (4)** Seminar/discussion, three hours. Advanced topics in paleobiology, biostratigraphy, paleoecology, and paleobiogeography, with emphasis on relations to other disciplines. S/U or letter grading.

**259. Seminar: Paleotectonics (4)** Seminar, two hours; discussion, two hours. Requisite: course 244. Basin evolution and paleogeography, with emphasis on Phanerozoic of Western U.S. S/U or letter grading.

**C260. Field Seminar. (2 to 6)** Seminar, three hours; discussion, one hour; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum that varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. May be repeated for credit. Concurrently scheduled with course C160. S/U or letter grading.

**261. Topics in Magnetospheric Plasma Physics (4)** Lecture, four hours. Lectures, discussions, and exercises on specific advanced topics in magnetospheric plasma physics. Previous courses examined magnetic storms, magnetospheric substorms, ultralow frequency waves, and adiabatic particle motion in Earth's radiation belts. S/U or letter grading.

**C262. Application of Remote Sensing in Field (4)** Fieldwork, five hours; laboratory, two hours. Requisite: course 150. Application of remote-sensing techniques to field situations. Digital analysis and interpretation of near-infrared, thermal-infrared, and microwave data from satellites and aircraft. Field observation of study site in California desert for testing hypotheses during week between Winter and Spring Quarters. Concurrently scheduled with course C162. S/U or letter grading.

**263A. Solar System Magnetohydrodynamics (4)** (Same as Atmospheric and Oceanic Sciences M250A.) Lecture, three hours. Requisite: Atmospheric and Oceanic Sciences C205A. Derivation of MHD equations with two fluid aspects, generalized Ohm's law, small amplitude waves, discontinuities, shock waves, and instabilities. Applications to statics and dynamics of solar wind and planetary magnetospheres and to solar wind/magnetosphere/ionosphere coupling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

**264. Order of Magnitude Earth and Planetary Sciences (4)** Seminar, three hours; discussion, three hours. Limited to departmental graduate students. Many graduate students have had little practice in making rough estimates or order of magnitude (OOM) assessments of physical problems, and even less practice at talking through problems with others. One key problem is tendency for rote memorization to take precedence over understanding. Discussion of basic problems from OOM perspective, with focus on problems appropriate to Earth, planetary, and space sciences, to inculcate physically based reasoning and promote effective on-your-feet communication. Attendance at departmental colloquium required each week. S/U or letter grading.

**265. Instrumentation, Data Processing, and Data Analysis in Space Physics (4)** Lecture, three hours. Principles, testing, and operations of magnetometers and other instruments. Data processing, display, and archiving. Time-series analysis techniques, including filtering. Fourier series, eigenanalysis, and power spectra. S/U or letter grading.

**C266. Tectonic Geomorphology (4)** Lecture, three hours. Recommended: course 61, Mathematics 31A. Interactions between tectonic, climate, and surface processes shape landscapes over days to millions of years. Focus on quantifying how tectonic and surface processes interact to govern landscape evolution. How landscapes can provide insights into physical and chemical surface processes, including bedrock weathering, soil formation, hillslope transport, and river and glacial erosion. How tectonics, climate, and underlying lithology may influence those processes in landscapes. Concurrently scheduled with course C166. S/U or letter grading.

**270A. Seminar: Climate Dynamics. (2 to 4)** (Same as Atmospheric and Oceanic Sciences M272A and Geography M270A.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**270B. Seminar: Climate DynamicsS. (2 to 4)** (Same as Atmospheric and Oceanic Sciences M272B and Geography M270B.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**270C. Seminar: Climate DynamicsS. (2 to 4)** (Same as Atmospheric and Oceanic Sciences M272C and Geography M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**CM273. Earth Process and Evolutionary History (6)** (Same as Ecology and Evolutionary Biology CM228.) Lecture, four hours; laboratory, three hours. Requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, and 4, or 7A, 7B, and 7C (or 7A and introductory course in geology). Exploration of relationship between physical processes, such as tectonics and climate, and how they affect surface and impact biology of Earth. Study of evolution of universe, Earth, and life, with integration of history of science, including Darwinian evolution and plate tectonics revolutions. Study of formation of matter offers tools to understand geologic process of climate and ecology of Earth. Past climate change to examine expected future human-influenced climate. Consideration of major events in history of life on Earth. Data and methods from geology, genetics, and geochemistry are integrated to reconstruct past events. This reveals how Earth processes shaped life and how life shaped Earth. Concurrently scheduled with course CM173. Letter grading.

**C279. Search for Extraterrestrial Intelligence (SETI) (4)** Lecture, two hours; laboratory, two hours. Recommended: course 71 or Computer Science 31 or Program in Computing 10A, Mathematics 31B, Physics 1C or 5C. Project-based study with focus on the search for extraterrestrial intelligence (SETI), with material from astronomy, computer science, mathematics, signal processing, and statistics. Design of observational program, acquisition of telescopic data, development of algorithms to analyze data, and presentation of results. Introduction to the abundance and characteristics of extrasolar planetary systems; radio astronomy, including wave propagation and Doppler shift; signal processing, including sampling theory and Fourier transforms; random processes, including Gaussian and binomial statistics; and algorithm development. Concurrently scheduled with course C179. S/U or letter grading.

**285. Origin and Evolution of Solar System (4)** (Same as Astronomy M285.) Lecture, four hours. Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

**286A. Current Research in Planetary Sciences (2)** Seminar, two hours. Problems of current interest concerning moon, planets, and meteorites. May be repeated for credit. S/U grading.

**286B. Current Research in Planetary Sciences (2)** Seminar, two hours. Problems of current interest concerning moon, planets, and meteorites. May be repeated for credit. S/U grading.

**286C. Current Research in Planetary Sciences (2)** Seminar, two hours. Problems of current interest concerning moon, planets, and meteorites. May be repeated for credit. S/U grading.

**287A. Current Research in Geophysics (1)** Seminar, one hour. Current research in geophysics. May be repeated for credit. S/U grading.

**287B. Current Research in Geophysics (1)** Seminar, one hour. Current research in geophysics. May be repeated for credit. S/U grading.

**287C. Current Research in Geophysics (1)** Seminar, one hour. Current research in geophysics. May be repeated for credit. S/U grading.

**288A. Current Research in Space Physics (2)** (Same as Atmospheric and Oceanic Sciences M275A.) Seminar, two hours. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**288B. Current Research in Space Physics (2)** (Same as Atmospheric and Oceanic Sciences M275B.) Seminar, two hours. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**288C. Current Research in Space Physics (2)** (Same as Atmospheric and Oceanic Sciences M275C.) Seminar, two hours. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**289. Seminar: Fluid Dynamics (2)** Seminar, one to two hours. Problems of current interest in fluid dynamics, with emphasis on geophysical applications. May be repeated for credit. S/U grading.

**293A. Space Physics Journal Club (1)** Seminar, one hour. Limited to graduate space physics students in Earth, Planetary, and Space Sciences, Atmospheric and Ocean Sciences, and Physics and Astronomy Departments. Review of current space physics literature. May be repeated for credit. S/U grading.

**293B. Space Physics Journal Club (1)** Seminar, one hour. Limited to graduate space physics students in Earth, Planetary, and Space Sciences, Atmospheric and Ocean Sciences, and Physics and Astronomy Departments. Review of current space physics literature. May be repeated for credit. S/U grading.

**293C. Space Physics Journal Club (1)** Seminar, one hour. Limited to graduate space physics students in Earth, Planetary, and Space Sciences, Atmospheric and Ocean Sciences, and Physics and Astronomy Departments. Review of current space physics literature. May be repeated for credit. S/U grading.

**295A. Current Research in Earth, Planetary, and Space Sciences (1)** Lecture, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by outside speakers, staff, and/or graduate students describing current research. Written reports required. May be repeated for credit. S/U grading.

**295B. Current Research in Earth, Planetary, and Space Sciences (1)** Lecture, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by outside speakers, staff, and/or graduate students describing current research. Written reports required. May be repeated for credit. S/U grading.

**295C. Current Research in Earth, Planetary, and Space Sciences (1)** Lecture, one hour. Limited to graduate Earth, planetary, and space sciences students. Seminars presented by outside speakers, staff, and/or graduate students describing current research. Written reports required. May be repeated for credit. S/U grading.

**C296. Research Topics in Earth, Planetary, and Space Sciences (1)** Research group meeting, one to three hours. Designed for departmental students participating in research group. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. Concurrently scheduled with course C194. S/U grading.

**297. Advanced Techniques in Geological Research. (2 to 4)** Lecture, two to four hours. S/U grading.

**298. Advanced Topics in Earth and Space Sciences. (2 to 4)** Lecture, two to four hours. S/U or letter grading.

**495. Teaching Earth, Planetary, and Space Sciences (2)** Seminar, one hour; discussion, two hours. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. Special emphasis on integration of technology in classroom. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study and/or Research. (2 to 12)** Tutorial, to be arranged. May be repeated. S/U or letter grading.

**597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. S/U grading.

**598. MS Research and Thesis Preparation. (2 to 12)** Tutorial, to be arranged. May be repeated. S/U grading.

**599. PhD Research and Dissertation Preparation. (2 to 12)** Tutorial, to be arranged. S/U grading.

# East Asian Studies

## East Asian Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

### Graduate

**M265. Graduate Writing: Form, Process, and Thought (4)** (Same as History M265.) Seminar, three hours. Designed for East Asian Studies MA students and East Asia-focused doctoral students, but open to all graduate students. Focus on essential skill and craft of graduate-level writing. Consideration of everything from basics about process—drafts and editing—to professional-level questions of relation of form to content, and of writing for broader publics. Specific skills and techniques are connected with the fundamental theories and principles at stake in academic inquiry, and student capacities to participate fully in disciplinary and interdisciplinary work are built. May be repeated once for credit. S/U or letter grading.

**291A. Variable Topics in East Asian Studies (4)** Seminar, three hours. Selected topics on East Asia. May be repeated for credit with topic change. S/U or letter grading.

**291B. Variable Topics in East Asian Studies (4)** Seminar, three hours. Selected topics on East Asia. May be repeated for credit with topic change. S/U or letter grading.

# Ecology and Evolutionary Biology

## Ecology and Evolutionary Biology Courses

### Lower Division

**10. Plants and Civilization (4)** Lecture, three hours; demonstration, one hour. Designed for nonmajors. Origin of crop plants; man's role in development, distribution, and modification of food, fiber, medicinal, and other plants in relation to their natural history. P/NP or letter grading.

**11. Biomedical Research Issues in Minority Communities (5)** Discussion, four hours. Limited to 30 students. Discussions and student presentations on biomedical research as it affects minority communities, with emphasis on methodology, design, consequences, and ethics of current research. Discussion leaders provide information on preparation and training for research careers. P/NP or letter grading.

**12. Biodiversity and Extinction: Crisis and Conservation (4)** Lecture, three hours; discussion, one hour. Examination of ecological and evolutionary principles necessary to understand nature and importance of worldwide environmental crisis. Research by students of specific conservation issues and presentation of results to class. P/NP or letter grading.

**17. Evolution for Everyone (5)** Lecture, three hours; discussion, two hours. Exploration in detail of Darwinian natural selection, with emphasis on evidence and implications for modern problems people and societies face, including antibiotic resistance, insect resistance to pesticides, and coevolution of pollinators with crop plants. Nature of science in context of questions about ongoing real-time Darwinian processes. Letter grading.

**18. Why Ecology Matters: Science Behind Environmental Issues (5)** Lecture, three hours; laboratory, two hours. Basic ecological concepts, scientific method, and ecological basis for local and global environmental issues. Major challenges to be faced in this century, including need to find interdisciplinary and collaborative solutions to world's worsening environmental problems (e.g., global climate change, biodiversity loss, deforestation, pollution, declining water resources, declining fisheries). Environmental literacy to equip students to become leaders in growing green economy and to help forge solutions to current and future environmental crises that threaten natural resource base. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**21. Field Biology (4)** Lecture, three hours; discussion, two hours, or field trips, three to four hours. Recommended preparation: Life Sciences 15. Not open for credit to students with credit for course 122 or Life Sciences 1. Introduction to natural history of Western North America, especially Southern California. Classification, distribution, and ecology of common plants and animals. P/NP or letter grading.

**25. Living Ocean (5)** Lecture, three hours; laboratory, one hour; field trips, three hours. Not open for credit to students with credit for Earth, Planetary, and Space Sciences 15. Physical and chemical processes that take place in oceans, with emphasis on their effects on organisms. P/NP or letter grading.

**50. Desert Life (4)** Lecture, three hours; laboratory, two hours. Introduction to fundamental structural, physiological, and behavioral features of desert organisms, with special emphasis on deserts of Western North America. P/NP or letter grading.

**87. California's DNA: Field Course (1)** Lecture, one hour; fieldwork, four hours (every other week). Limited to freshmen. Students join CALeDNA community science program and do fieldwork to sample soil and sediments in California. Familiarization with University of California natural reserves spanning coast to woodland, and desert to mountains. Analysis of samples for DNA to capture snapshot of local biodiversity. Prepares students for more intensive, related upper-division science course. Guided Saturday field trips or independent trips. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**95. Lower-Division Internship in Biology (4)** Tutorial/fieldwork, three hours per week per unit. Internship course for lower-division students to be supervised by Center for Community Learning, fieldwork site, and faculty adviser. Consult Undergraduate Office for more information. May be repeated twice. Individual contract with supervising faculty member required. P/NP grading.

**96. Communicating Science: Bringing Complex Concepts to Life (2)** Seminar, three hours. Limited to Ecology and Evolutionary Biology Department majors. Development of tools for research, integrating and presenting complex scientific concepts concisely and effectively. Basic animation techniques and work in groups to illustrate life sciences concepts. How to engage audiences and convey clear messages. Letter grading.

**97. Variable Topics in Ecology and Evolutionary Biology. (1 to 4)** Seminar, three to 12 hours. Current issues in research in ecology and evolutionary biology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

**97XA. PEERS Freshman Seminar: Succeeding in Science (1)** Seminar, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures, workshops, and discussions to enhance student success in sciences by developing critical academic survival skills, acquainting students with practice of science, and highlighting opportunities available to participate in research as undergraduate students. P/NP grading.

**97XB. PEERS Sophomore Seminar: Pathways in Science (1)** Seminar, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures and workshops to enhance student success in sciences by acquainting students with practice of science, opportunities available to participate in research as undergraduate students, and careers available to students with science degrees. P/NP grading.

**97XC. AAP Freshman Seminar: Succeeding in Science Majors and Careers (1)** Seminar, one hour. Limited to science majors in Academic Advancement Program (AAP) who took Mathematics 1 in fall term. Series of lectures, workshops, and discussions designed to enhance student success in sciences by developing critical academic survival skills, acquainting students with campus resources, introducing students to practice of science, and highlighting opportunities available to participate in research as undergraduate students. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Introduction to Ecology and Behavior (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 7B. Not open for credit to students with credit for course 118, 122, 124A, 124B, 125, C126, 129, 132, 134B, 136, or 151B. Introduction to methods and topics in ecology and behavior. Growth and regulation of populations, organization of communities and ecosystems, biogeography, and behaviors animals use to find food, choose mates, and interact in social groups. Letter grading.

**100L. Introduction to Ecology and Behavior Laboratory (4)** Laboratory, four hours. Requisites: course 100 (may be taken concurrently), Life Sciences 1 or 7B. Introduction to research methods in ecology and behavior, resulting in independent research proposals and to gain understanding of scientific method, critical evaluation of research papers, and development of scientific writing skills. Involves work outside and off-campus meetings. To apply this course to the Biology upper-division major laboratory requirement, the corresponding lecture course must be completed with a passing grade. Letter grading.

**101. Marine Botany (6)** Lecture, four hours; laboratory, six hours; three to four field trips. Requisite: Life Sciences 1 or 7B. Introduction to biology and ecology of marine plants, including algae, sea grasses, and mangroves, with focus on form and function of marine plants and their ecological role in different marine habitats and ecosystems. Letter grading.

**102. Biology of Marine Invertebrates (4)** Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1 or 7B. Morphology, systematics, life histories and natural history, ecology, behavior, and physiology of marine invertebrates. Given off campus at marine science center. P/NP or letter grading.

**103. Plant Diversity and Evolution (5)** Lecture, three hours; laboratory, three hours; field trip. Requisites: Life Sciences 1 and 4, or 7A and 7B. Introduction to green plant tree of life, with emphasis on using phylogenetic perspective to examine major transitions in plant evolution, including evolution and diversification of land plants, vascular plants, seed plants, and currently ecologically dominant flowering plants. Introduction to phylogenetics, providing overview of theory and methodology to reconstruct and use phylogenetic trees to study organismal evolution. Exploration of 700 million years of plant evolution, with emphasis on morphological, functional, ecological, and biogeographical perspectives. Letter grading.

**104. Plants and People (4)** Lecture, two and one half hours; discussion, one hour. Enforced requisites: Life Sciences 7A, 7B, 7C. Plants are the foundation of most terrestrial ecosystems and humans are utterly dependent on them for survival and reproduction. Exploration of diversity of plants that provide significant economies and those that intersect with certain cultural cosmologies. Examination of their ecological, evolutionary, and economic histories while studying plant morphology and function. Highlights importance of plants to human cultures from biological and cultural perspectives in historical and modern contexts. Letter grading.

**105. Biology of Invertebrates (6)** Lecture, three hours; laboratory/field trips, six hours. Requisite: Life Sciences 1 or 7B. Introduction to systematics, evolution, natural history, morphology, and physiology of invertebrates. P/NP or letter grading.

**106. Experimental Marine Invertebrate Biology. (4, 6)** Lecture, two hours; laboratory, 12 hours. Requisites: course 105, Physiological Science 166 (may be taken concurrently). Offered either as 6-unit quarter-long course or as 4-unit Marine Biology Quarter course. Advanced course of natural history, physiology, biochemistry of invertebrates, with emphasis on independent laboratory and field investigations. P/NP or letter grading.

**107. Evolution, Development, and Function of Invertebrate Animals (6)** Lecture, three hours; laboratory, three hours; three weekend field trips. Requisite: course 105 or completion of Marine Biology Quarter. Advanced invertebrate biology course exploring evolutionary relationship of animal groups and evolution of marine species, comparative development and developmental genetics of invertebrate form, and form and function as they relate to marine invertebrates. Letter grading.

**108. Biodiversity in Age of Humans (5)** Lecture, two and one half hours; discussion, one hour; field trip, six to eight hours. Students learn how to use scientific method, ask and answer questions about eDNA, analyze literature, and develop professional skills applicable to any major or career. Series of biointeractive videos, interactive worksheets, and short lectures outside of class set baseline knowledge for problem solving and applied learning in classroom. Letter grading.

**109. Introduction to Marine Science (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Strongly recommended for prospective Marine Biology Quarter students. Introduction to physical and biological world of 70 percent of planet: oceans. Designed to be integrative, with focus on geological evolution of seas, physical and chemical properties of water, and how these abiotic processes shape ecology and evolution of marine organisms and environments. Letter grading.

**109L. Introduction to Marine Science Laboratory (4)** Laboratory, three hours; four field trips. Requisites: course 109 (may be taken concurrently), Life Sciences 1 or 7B. Introduction to marine environments and methods used to study them. Exploration of variety of concepts in marine science, ranging from oceanography to behavior, primary productivity, and marine biodiversity, with emphasis on experimental design and scientific writing. To apply this course to the Biology upper-division major laboratory requirement, the corresponding lecture course must be completed with a passing grade. Letter grading.

**110. Vertebrate Morphology (6)** Lecture, three hours; laboratory, five hours. Requisites: Life Sciences 1, 2, and 3, or 7A and 7B. Study of vertebrate morphology, function, and evolution from viewpoint of comparative anatomy of adult forms, biomechanics, development, and paleontology. Laboratory study of selected vertebrates. Letter grading.

**111. Biology of Vertebrates (5)** Lecture, three hours; laboratory, three hours; four one- to two-day field trips. Requisite: Life Sciences 1 or 7B. Adaptations, behavior, and ecology of vertebrates. Letter grading.

**112. Ichthyology (6)** Lecture, three hours; laboratory, six hours; field trips. Requisite: Life Sciences 1 or 7B. Highly recommended: courses 110, 111. Biology of freshwater and marine fishes, with emphasis on their evolution, systematics, morphology, zoogeography, and ecology. Field trips to examine fishes of Southern California shoreline, tidepools, and coastal streams. Letter grading.

**113A. Herpetology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Recommended requisite: course 120. Exploration and summarization of evolution, ecology, life history, and conservation biology of world's reptile and amphibian fauna. Topics include conservation assessments both globally and in California, discussion sections focused on student-led critical evaluations of current literature, and in-class meetings with professional herpetologists to share their professional experiences and job opportunities. Letter grading.

**113AL. Herpetology Laboratory (4)** Laboratory, six hour; field trips. Corequisite: course 113A. Primary focus on learning defining features, biogeography, and natural history of world's reptile and amphibian fauna, with special focus on California species. Field trips to observe living species in field, including one extended three-day trip. Letter grading.

**113B. Field Herpetology (8)** Requisite: Life Sciences 1. Recommended: courses 100, 111. Two weeks of off-campus research projects followed by two-week lecture course and offered only as part of Field Biology Quarter. Biology, particularly ecology and behavior, of reptiles and amphibians in their natural habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion. Letter grading.

**114A. Ornithology (5)** Lecture, three hours; laboratory/field trips, three hours. Requisite: Life Sciences 1 or 7B. Recommended: course 100. Systematics, distribution, physiology, behavior, and ecology of birds. Letter grading.

**114B. Field Ornithology (8)** Requisite: Life Sciences 1. Recommended: course 100. Two to three weeks of off-campus research projects followed by lecture course and offered only as part of Field Biology Quarter. Biology, particularly ecology and behavior, of birds in their natural habitat. Letter grading.

**115. Mammalogy (5)** Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1 or 7B. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Letter grading.

**116. Conservation Biology (4)** Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1 or 7B. Recommended: course 100. Not open for credit to students with credit for Environment 121. Study of ecological and evolutionary principles as they apply to preservation of genetic, species, and ecosystem diversity. Discussion sections focus on interactions of science, policy, and economics in conserving biodiversity. Oral and written student presentation on specific conservation issues. Letter grading.

**117. Evolution of Vertebrates (5)** Lecture, three hours; laboratory, three hours. Recommended requisite: course 110. Survey of origin and evolution of vertebrates through examination of fossil record. Focus on fossil record of tetrapods, with emphasis on anatomical and physiological transformations in amphibians, reptiles, birds, and mammals. Letter grading.

**118. Plant Adaptations (8)** Lecture, one hour; field trip, 10 hours. Requisite: course 100. Five-week course offered only as part of Field Biology Quarter. Field-oriented introduction to mechanisms by which vascular plants adapt themselves to their abiotic and biotic environments using community, population, and ecophysiological levels of integration. Letter grading.

**C119A. Mathematical and Computational Modeling in Ecology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 30B or Mathematics 3B or 31A. Recommended: courses 100, 122, Life Sciences 1 or 7B, Mathematics 3C. Introduction to modeling dynamics of ecological systems, including formulation and analysis of mathematical models, basic techniques of scientific programming, probability and stochastic modeling, and methods to relate models to data. Examples from ecology but techniques and principles applicable throughout life and physical sciences. Concurrently scheduled with course C219A. P/NP or letter grading.

**C119B. Modeling in Ecological Research (4)** Lecture, two hours; discussion, two hours. Recommended requisite: course C119A. Advanced techniques in mathematical and computational modeling of ecological dynamics and other population dynamic problems. Independent research projects developed by students. Topics include model formulation, stochastic models, fitting models to data, sensitivity analysis, presentation of model results, and other topics from current literature. Concurrently scheduled with course C219B. P/NP or letter grading.

**120. Evolution (4)** Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, 2, 3, 4, and 23L, or 7A, 7B, 7C, and 23L, Mathematics 3A and 3B (or 31A or Life Sciences 30B). Not open for credit to students with credit for course 185. Designed for departmental majors specializing in environmental and population biology. Introduction to mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation. P/NP or letter grading.

**121. Molecular Evolution (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A and 23L. Molecular biology, with emphasis on evolutionary aspects. DNA replication, RNA transcription, protein synthesis, gene expression, and molecular evolution. Letter grading.

**122. Ecology (4)** Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1 or 7B, Mathematics 3B or 31A or Life Sciences 30B. Highly recommended: Mathematics 31B, 32A. Designed for departmental majors specializing in environmental and population biology. Introduction to population and community ecology, with emphasis on growth and distributions of populations, interactions between species, and structure, dynamics, and functions of communities and ecosystems. P/NP or letter grading.

**123A. Field Marine Ecology. (4, 8)** Lecture, five hours; laboratory, 15 hours. Recommended requisites: courses 100, 122. Offered either as 4- or 8-unit five-week intensive course given off campus as part of Marine Biology Quarter that is in residence at research station located outside continental U.S. Survey of current topics in marine ecology, including analysis of primary research literature combined with field study of ecology of marine organisms, populations, communities, and ecosystems. Original research project required. Letter grading.

**123B. Field Marine Ecology. (4, 8)** Lecture, five hours; laboratory, 15 hours. Recommended requisites: courses 100, 122. Offered either as 4- or 8-unit five-week intensive course given off campus as part of Marine Biology Quarter that is in residence at research station located within U.S., including Alaska and Hawaii. Survey of current topics in marine ecology, including analysis of primary research literature combined with field study of ecology of marine organisms, populations, communities, and ecosystems. Original research project required. Letter grading.

**124A. Field Ecology. (4, 8)** Lecture, five hours; laboratory or field trip, 15 hours. Requisites: course 100, Life Sciences 1 or 7B. Recommended: courses 111, 120, 122. Offered as part of Field Biology Quarter that is in residence at research station located outside continental U.S. for part of or for duration of term. Field and laboratory research in ecology; collection, analysis, and write-up of numerical data, with emphasis on design and execution of field studies. Letter grading.

**124B. Field Ecology. (4, 8)** Lecture, five hours; laboratory or field trip, 15 hours. Requisites: course 100, Life Sciences 1 or 7B. Recommended: courses 111, 120, 122. Offered as part of Field Biology Quarter that is in residence at research station located within U.S., including Alaska and Hawaii, for part of or for duration of term. Field and laboratory research in ecology; collection, analysis, and write-up of numerical data, with emphasis on design and execution of field studies. Letter grading.

**125. Tropical Animal Communication. (4, 8)** Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1 or 7B. Offered either as 4-unit quarter-long course or as 8-unit Field Biology Quarter course. Animal communication behavior, tropical vertebrate biology, and evolution of information processing systems. Eight-unit course covers same basic lecture material in five or six intensive weeks, followed by extended field trips where students do individual projects in animal communication. Letter grading.

**C126. Behavioral Ecology. (4, 8)** Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1 or 7B, Mathematics 3C or 32A or Life Sciences 30B. Recommended: course 129. Offered either as 4-unit quarter-long course or as 8-unit Field Biology Quarter course. Evolutionary perspective of behavioral ecology, with extended consideration of selfish DNA, conflict with genomes, natural selection and coevolution, kin selection and diversity in group functioning and cooperation, social learning, game theory and alternative life histories, and human behavioral ecology. Eight-unit course covers several major areas in animal behavior more broadly, including foraging, sexual selection and predator-prey interactions in five intensive weeks, followed by extended field trip where students do individual projects. Concurrently scheduled with course C242. Letter grading.

**127. Soils and Environment (4)** (Same as Environment M102 and Geography M102.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

**127L. Soils and Environment: Field (1)** (Same as Environment M102L and Geography M102L.) Laboratory, one hour; field excursions. Corequisite: course M127. Investigations and demonstrations supporting material in course M127, including excavating, describing, and naming soils in field, soil forming processes, geomorphology, and soils. P/NP or letter grading.

**128. Plant Physiological Ecology (5)** Lecture, three hours; laboratory, three hours; one two-day field trip. Requisites: Life Sciences 1 or 7B, Physics 1C and 4BL, or 5B or 6C. Study of plant/environment interactions under natural conditions. Transpiration and photosynthesis, leaf temperatures, and water movement in soil/plant/atmosphere continuum. Letter grading.

**129. Animal Behavior (4)** Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1 or 7B. Introduction to behavioral ecology. Methods and results of evolutionary approaches to study of animal behavior, including foraging strategies, social competition, sexual selection, mating systems, cooperation, and social organization. Letter grading.

**130. Principles of Systematic Biology (4)** Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1 or 7B. Recommended: courses 120, 135. Concepts, principles, and methods of comparative biology as they apply to inference of evolutionary relationships among organisms. Principles and application of biological nomenclature. Letter grading.

**131. Ecosystem Ecology (4)** (Same as Geography M110.) Lecture, three hours; field trips. Requisite: Geography 1 or Life Sciences 7B. Designed for juniors/seniors. Development of principles of ecosystem ecology, with focus on understanding links between ecosystem structure and function. Emphasis on energy and water balances, nutrient cycling, plant-soil-microbe interactions, landscape heterogeneity, and human disturbance to ecosystems. P/NP or letter grading.

**132. Field Behavioral Ecology (8)** Lecture, two hours; laboratory/field trip, 10 hours. Requisites: course 100, Life Sciences 1 or 7B. Recommended: course 129. Five-week course offered only as part of Field Biology Quarter. Field research in behavioral ecology, emphasizing animal communication. Design and execution of individual and small group field projects during extended field trip. Letter grading.

**133. Elements of Theoretical and Computational Biology (4)** Lecture, three hours; discussion, one hour; laboratory, two hours. Requisites: Life Sciences 1, 2, 3, 4, 23L, and Mathematics 3A, 3B, and 3C, or 31A and 31B, or Life Sciences 30B. Strongly recommended: elementary statistics course. Introduction of basic core mathematical ideas and models necessary to understand contemporary ecology and evolutionary biology. Population ecology and growth, community ecology, population genetics, natural selection. P/NP or letter grading.

**134B. Field Physiological Ecology of Desert Animals (8)** Fieldwork, 15 hours. Requisite: Life Sciences 1 or 7B. Recommended: course 100. Two weeks of off-campus research projects with two-week lecture course (four hours per day) and offered only as part of Field Biology Quarter. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in arid habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion. Letter grading.

**C135. Population Genetics (4)** Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 4 or 7A. Strongly recommended: course 100, Mathematics 31A, and 31B or Life Sciences 30B. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. Concurrently scheduled with course C235. Letter grading.

**136. Ecological Restoration (6)** Lecture, two and one half hours; laboratory, three hours; three field trips. Requisites: course 100, Life Sciences 1 or 7B. Study of ecosystems that have been degraded by overuse or unsustainable extraction of natural resources, foundation of restoration ecology including historical knowledge, reference sites, soil preparation, biodiversity, California natives, succession, disturbances, and best management practices when restoring landscape. Students learn to identify classic symptoms of unhealthy ecosystem and important metrics to determine if and when ecosystem is recovering. Students evaluate Stone Canyon Creek at UCLA. Students develop site and vegetation maps, conduct soil and water tests, and assess overall health of area. Students develop recommendations for restoration plan. Mandatory all-day field trips. Letter grading.

**137. Chemical Communication (4)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL, Life Sciences 1, 2, 3, 23L. Chemical signals are most important means by which organisms communicate. Exploration of how chemical signals are produced, transported, and influence behavior of microbes, plants, and animals. Synthetic approach, with emphasis on applications to cell biology, physiology, and ecology. P/NP or letter grading.

**139. Introduction to Chemical Oceanography (4)** (Same as Atmospheric and Oceanic Sciences M105.) Lecture, three hours; discussion, one hour. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Chemical composition of oceans and nature of physical, chemical, and biological processes governing this composition in past and present. Cycles of major and minor oceanic constituents, with focus on those that are most important for life (i.e., carbon, nitrogen, phosphorus, silicon, and oxygen). Investigation of primary production, export production, remineralization, diagenesis, air-sea gas exchange processes. Letter grading.

**140. Biology of Marine Mammals (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Examination of evolution, systematics, natural history, anatomy, physiology, and conservation of mammals secondarily adapted to life in oceans: cetaceans, pinnipeds, sirenians, marine otters, and polar bear. Through lectures and readings from recent primary literature, students gain understanding of special adaptations to mammalian life in aquatic environment, roles of marine mammals in oceanic ecosystems, and general principles of marine mammal population biology. Study of historical and contemporary exploitation, conservation, and management of marine mammal stocks. Letter grading.

**142. Aquatic Communities (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Overview of species and communities in marine and freshwater environments. Exploration of interactions of physical and biological factors that shape communities and how scientists test hypotheses. Emphasis on critical reading of primary literature. Letter grading.

**143. Viral Ecology and Evolution (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 7A, 7B, 7C, 23L. Viruses are most common biological entity on planet, and have broad-ranging ecological and evolutionary environmental and medical impacts. This makes understanding roles of viruses central to understanding how ecosystems work, how microorganisms change over time in face of viral infection, how viral pandemics occur and progress, and how many human diseases affect individual health. Students gain comprehensive understanding of how viruses operate in environmental and medical systems, and how they and their hosts evolve over time; and reasoned perspective on future impacts of viruses in changing ecosystems, and on human societies and health. Emphasis on development of mechanistic understanding of viruses. Letter grading.

**144. Prehistoric California (4)** Lecture, three hours; discussion, one hour; field trips. Requisite: Life Sciences 7B. Recommended: course 100. Survey of history of life as illustrated in fossil record of California. Emphasis on how faunas have changed over time, especially during periods of diversification and extinction. Relation of influence of major events of geologic, climatic, and environmental change on living organisms to environmental change on human timescales. Emphasis on how scientists collect and evaluate fossil data through understanding of living organisms. Letter grading.

**144L. Prehistoric California Laboratory (4)** Laboratory, three hours. Corequisite: course 144. Survey of major groups of organisms from oceans and on land that can be found in fossil record of California, and relation of them to some of major events in history of life. Emphasis on how faunas have changed over time, especially during periods of diversification and extinction. Consideration of what can be ascertained about life and environments of past from fossils of California and rocks that contain them. Letter grading.

**145. Advanced Paleontology (4)** (Same as Earth, Planetary, and Space Sciences M118.) Lecture, three hours. Requisite: course 110 or 117 or Earth, Planetary, and Space Sciences 116. Consideration of major factors that have influenced history of life, including analytical approaches to analyzing patterns in fossil record, nature of rock record, and contribution of data from stable isotopes, functional morphology, phylogenetics, and developmental biology. P/NP or letter grading.

**C146. Conservation Genetics (4)** Lecture three hours; discussion, one hour. Requisites: course 150 or Life Sciences 107, Life Sciences 7A, 7B, 7C. Conservation genetics is interdisciplinary field that integrates genetic methods and concepts from population genetics, evolutionary biology, molecular ecology, and systematics to understand how to conserve and manage populations and species of natural organisms, and understand genetic processes underlying why some go extinct. Case studies of plants and animals cover range of topics including habitat loss, population size, and inbreeding depression; landscape change and genetic connectivity of populations; climate change and local adaptation; management of wild and natural populations; and invasive species. Concurrently scheduled with course C246. Letter grading.

**147. Biological Oceanography (4)** Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, 23L. Lectures include physical, chemical, and biological factors affecting abundance and distribution of or-



ganisms in marine environment. Laboratory includes experimental studies of local marine organisms, with emphasis on primary and secondary production and nutrient flux. Letter grading.

**148. Biology of Marine Plants (4)** Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, and 23L, or 7A, 7B, and 23L. Introduction to general biology of marine algae, including basics of structure reproduction, life histories, systematics, and introduction to physiology and ecology of marine algae. Techniques in culture and laboratory investigation and utilization of algae. Given off campus at marine science center. Letter grading.

**149. Evolutionary Genomics (4)** Lecture, two hours; laboratory, two hours. Requisites: Life Sciences 7A, 7B, 7C, 23L. Evolutionary genomics is study of variation and changes in genomic sequences due to natural selection pressures. Virtually all organisms on this planet experience evolutionary pressures. Evolutionary pressures act on genomic variation, and in turn can change genomic composition of populations and whole species. Study of how evolutionary forces of mutation, drift, selection, recombination, and migration can change genomes. Analysis of genomic data to make evolutionary inferences. Letter grading.

**150. Principles of Genetics (4)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A or 20A, 14C or 30A, Life Sciences 7A, 7B, 7C, 23L. Genetics is most diverse and inclusive of biological sciences. Fields as divergent as medicine and evolution require understanding of fundamental concepts of heredity as they apply to individuals and populations. Many important social questions require understanding of genetics for informed decision making. Study of foundations of genetics at level expected of all biologists. Students learn basic terminology of field and physical and biochemical basis of various modes of heredity. Students gain understanding of some social implications of various aspects of genetics, and tools necessary to form informed opinions on these issues. Letter grading.

**150L. Principles of Genetics Laboratory (4)** Laboratory, four hours. Corequisite: course 150. Genetics is most diverse and most inclusive of biological sciences. Fields as divergent as medicine and evolution require understanding of fundamental concepts of heredity as they apply to individuals and populations, and skills to ask and answer questions using genetic techniques. Letter grading.

**151A. Tropical Ecology (4)** Lecture, one hour; discussion, two hours. Requisite: Life Sciences 1 or 7B. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of range of tropical forest habitats. Discussion of such themes as biogeography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. P/NP or letter grading.

**151B. Field Tropical Ecology (8)** Lecture, three hours; fieldwork, five hours. Requisites: course 100, Life Sciences 1 or 7B. Two weeks of off-campus research projects followed by two-week lecture course and offered only as part of Field Biology Quarter. Introduction to biodiversity, community structure, and dynamics and ecosystem function in tropical forest habitat. Letter grading.

**152. World Vegetation Ecology and Ecophysiology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Diversity of physiological and ecological adaptations in biomes of world, explaining distribution and dynamics of world vegetation types. Focus on processes across scales from cells to ecosystem to globe, instrumentation for environmental and ecophysiological measurements, and experiments used to make discoveries about plant adaptation. Letter grading.

**153. Physics and Chemistry of Biotic Environments (4)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A, 14B, and 14BL (or 20A, 20B, and 20L), Life Sciences 1. Recommended: Life Sciences 2, 3, 4, 23L, Physics 6A. Chemical and physical principles that are critical to functional responses by organisms to their habitats. Focus is integrative, providing comprehensive training in basic sciences of physics and chemistry as applied to environmental processes, and consequences of these processes for individual performance, populations, and communities. Covers variety of topics in applied chemistry, including proton pumps, carbonate biogeochemistry and ocean acidification, and allometric scaling of metabolism and effects of temperature on physiological function. Fundamentals of boundary-layer physics and their role in organism's life history. Physics as natural life process, including how organisms are mechanically structures to avoid, resist, or comply to fluid (air and water) motion. P/NP or letter grading.

**154. California Ecosystems (5)** Lecture, three hours; laboratory or field trip, four hours. Requisite: Life Sciences 1 or 7B. Recommended: course 100. Introduction to structure, biodiversity, and dynamics of California ecosystems, with focus on Southern California, and impact of human activities on these systems. P/NP or letter grading.

**155. Community Ecology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Recommended: course 100 or 122. Community ecology is study of biodiversity in ecological context: structure and dynamics of natural species assemblages in space and time, and ecological and evolutionary mechanisms that determine which species are present or absent from particular assemblages. Examination of existing theories of community organization and evidence, both observational and experimental, bearing on these theories. Consideration of diverse array of communities—plant, animal, microbial, terrestrial, and marine—to give appreciation of extraordinary natural history and diversity of life on Earth as it exists in its living ecological context. Discussion of how ecological communities are responding now and will respond in future to anticipated global change, and conservation implications of these changes. Letter grading.

**156. Biology and Social Justice (4)** Lecture, four hours. Consideration of intersection of biological discovery and human society to better understand how scientific advances have both promoted and mitigated social inequality. Letter grading.

**157. Biology of Superheroes: Exploring Limits of Form and Function (4)** (Same as Society and Genetics M157.) Lecture, four hours; discussion, one hour. Requisites: Life Sciences 1 and 4, or 7A and 7B. Combines topics posed in popular graphic novels, movies, and television with primary scientific literature to explore bizarre phenomena in natural world and delve into basic scientific theory and principles. Topics covered include evolution, genetics, physiology, biomechanics, brain-machine interfacing, and artificial intelligence among others. Students synthesize primary literature on diverse subjects presented. Letter grading.

**158. Introduction to Diversity, Health Disparities, and Environment (5)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 7B. Exploration of how environmental and social conditions can combine and lead to disproportionate negative health outcomes in disadvantaged communities. Exploration of the ways in which people are working to understand and remedy these issues. Introduction to environmental drivers of health disparities. Exposure to the diversity of careers and career trajectories of individuals (clinicians, researchers, public health officials, etc.) focused on promoting health equity, at times by addressing problems in the environments where different communities live and work. Letter grading.

**159. Biological Modeling: Mathematical and Computational Approaches (5)** (Same as Computational and Systems Biology M150.) Lecture, four hours; laboratory, three hours. Requisites: Life Sciences 7A, 7B, 7C, Mathematics 33A and 33B, with grades of C or better. Recommended Requisites: Physics 1A, 1B, and 1C, or 5A, 5B, and 5C, with grades of C or better. Students learn how to translate their biological knowledge and intuition into mathematical equations and computer simulations, and how to interpret and glean biological insights from quantitative results and predictions. Review and integration of core mathematical and computational approaches in novel ways. Students gain experience translating and intuition about systems through many examples across range of biological levels, such as predator-prey, disease transmission, cancer initiation, cell migration, neural systems, vascular networks, sleep, drug interactions, gene expression, and more. Students learn how to manipulate data, basics of coding, and how to instantiate their mathematical models and biological intuition through numerical solutions and simulations. Letter grading.

**160. Introduction to Plant Biology (4)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 162. Introduction to aspects of plant biology. Topics include plant body, reproduction, plant diversity, gene expression, and basic plant function. Letter grading.

**161. Plant Ecology (4)** Lecture, two and one half hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Introduction to ecology of terrestrial plants, covering individuals, populations, communities, and global processes. Topics include plant form and function, seed dormancy and population dynamics, life histories, disturbance and succession, community structure and dynamics, and global change. P/NP or letter grading.

**161L. Plant Ecology Laboratory (4)** Laboratory, four hours. Requisites: course 161 (may be taken concurrently), Life Sciences 7B. Introduction to foundational principles, theory, and field application of ecology. Emphasis on ecology of terrestrial plants, use of these principles to predict consequences, and uncertainties associated with human-caused changes in environment. Examination of both biotic and abiotic elements of environment that influence distribution and abundance of plant species. Includes range of activities, from observations of plant materials in laboratory and in UCLA botanical garden, to manipulative greenhouse experiments with fast growing annual plants, to computer-based explorations of dynamics of foundational ecological models. Letter grading.

**162. Plant Physiology (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, and 23L, or 7A, 7B, 7C, and 23L. Basic aspects of plant function, including photochemical, biochemical, and physiological as-

pects of photosynthesis. Carbon and nitrogen metabolism and its regulation; organellar interactions and compartmentation. Water relations, ion transport, flowering, hormone action, and plant responses to stress. Letter grading.

**162L. Plant Physiology and Ecophysiology Laboratory (4)** Laboratory, 12 hours. Requisites: course 152 or 162 (may be taken concurrently), Life Sciences 1, 2, 3, and 23L, or 7A, 7B, 7C, and 23L. Focus on whole-plant physiology and ecophysiology from biochemical and molecular processes to whole-plant function and field performance to gain understanding and appreciation of plant function, including dynamic processes of growth, development, and reproduction. Exercises provide training in approaches and instrumentation such that students become scientists, applying physiological techniques to answer questions on plant function, including use of programs such as FunAnatomy (plant anatomy) and FastPlant (growing experiment). To apply this course to the Biology upper-division major laboratory requirement, the corresponding lecture course must be completed with a passing grade. Letter grading.

**163. Biology of Marine Tetrapods (4)** Lecture, five hours; laboratory and fieldwork, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, and 23L, or 7A, 7B, and 23L. Highly recommended: course 111. Five-week intensive course offered only as part of Marine Biology Quarter. Survey of higher vertebrates living in marine habitats, including estuarine amphibians, marine reptiles, seabirds, and marine mammals. Laboratory emphasizes observational and experimental approaches to study of morphology, systematics, ecology, and behavior of local marine birds and mammals. Given off campus at marine science center. Letter grading.

**164. Field Biology of Marine Fishes (4)** Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Recommended: Mathematics 3A, 3B, 3C. Five-week intensive course offered only as part of Marine Biology Quarter. Selected aspects of natural history, ecology, and behavior of diverse assemblage of local marine fishes. Fieldwork strongly emphasized. Given off campus at marine science center. P/NP or letter grading.

**165. Ecological Physiology of Marine Vertebrates (4)** Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14B and 14BL, or 20B and 30AL, Life Sciences 1, 3, 23L. Recommended: Life Sciences 30B or Mathematics 3C or 32A, and Physics 1C and 4BL, or 6C or 6CH. Five-week intensive course offered only as part of Marine Biology Quarter. Introduction to physiological adaptations of marine vertebrates to major physicochemical variables in world oceans and to major marine habitats. Given off campus at marine science center. Letter grading.

**166. Biology of Marine-Land Interface (4)** Lecture, five hours; fieldwork, 15 hours. Enforced requisites: courses 109, 109L, Chemistry 14A, 14B, 14BL (or 20A, 20B, 20L), Life Sciences 1, Physics 6A, Statistics 13. Recommended: Life Sciences 2, 3, 4. Land-sea interface is one of most biologically rich, yet challenging habitats on Earth. Organisms must contend with wide range of environmental conditions, including extreme variations in temperature, oxygen, pH, ultraviolet radiation, osmotic stress, and water availability. These habitats are among best natural laboratories for investigating patterns and processes of organism-environment interactions. Basic training in characterization of physical and chemical environmental features to establish basic tenets of organismal performance, as well as population and community dynamics in response to extreme environmental challenges. Foraging of critical new linkages between chemistry, physics, and biology through lecture, laboratory, and field investigations. Offered as part of Marine Biology Quarter. Letter grading.

**167. Natural History Collections in Biological Sciences (4)** Lecture, two and one half hours; discussion, one hour. Requisite: Life Sciences 7B. Consideration of how natural history collections play vital role in research, learning, and engagement. Topics include history of museum collections; history of naming species; collection curation; collections-based research; decolonization and diversity, equity, accessibility, and inclusion practices; and education and outreach using museum collections. Students learn to curate collections and gain understanding of how collections are used for education, outreach, and research. Letter grading.

**167L. Natural History Collections in Biological Sciences Laboratory (4)** Lecture, two and one half hours; discussion, one hour. Requisite: course 167 (may be taken concurrently). Consideration of how natural history collections play vital role in research, learning, and engagement. Topics include history of museum collections; history of naming species; collection curation; collections-based research; decolonization and diversity, equity, accessibility, and inclusion practices; and education and outreach using museum collections. Students learn to curate collections and gain understanding of how collections are used for education, outreach, and research. Culminates in final project, where students synthesize and implement their knowledge to produce educational, outreach, or research product using specimens from museum. Letter grading.

**168. Global Change Ecology (4)** Lecture, three hours; discussion, one hour. Exploration of physical climate system and its variability, carbon cycle and related biogeochemistry and ecosystem processes, land-use change, urbanization, and interactions among ecosystems, climate, biogeochemistry, and impact of global change on societally relevant issues and concerns. Global change ecology is field at interface between ecological systems and all aspects of environmental change that affects substantial part of globe. Focus on use of observations and models, consideration of multiple scales of change (temporal and spatial), interaction of human behaviors and choices with natural systems, and linkages across different aspects of global change science. Letter grading.

**169. Biology of Bats: The True Superheroes (4)** Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 7B. Comprising 20 percent of all mammals and inhabiting all but one continent, bats are the only mammals capable of powered flight. Bats can also echolocate, hibernate, live longer than humans, and harbor viruses but not get sick. This allows bats to be reservoirs for many viruses that can cause zoonotic diseases in humans, including Ebola and SARS-CoV-2, the virus that causes COVID-19. Exploration of evolution, anatomy, physiology, immunology, longevity, and conservation of bats. Focus on how scientists use bats as model system to address key questions in ecology, evolution, and human health. Letter grading.

**170. Animal Environmental Physiology (6)** Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14D, or 30B and 30BL, Life Sciences 1, 2, 3, 4, and 23L, or Life Sciences 7A, 7B, 7C, and 23L, 30B or Mathematics 3C or 32A, Physics 1C and 4BL, or 5B or 6C or 6CH. Not open for credit to students with credit for Physiological Science 166. Designed for Ecology, Behavior, and Evolution majors. Introduction to physiology (function) of animal organs and organ systems, with emphasis on environmental interactions and ecological adaptations. Letter grading.

**171. Coming of Age on Planet Earth (4)** Lecture, three hours; discussion, one hour. Across phylogenetically broad range of species, individuals in same developmental stage of life share vulnerabilities and similar challenges. Exploration of shared challenges facing animals as they transition from juveniles to mature adults through integration of behavioral ecology, neuroscience, life history theory, and phylogenetic modeling. Emphasis on life history theory, phylogenetic analyses, and development of testable hypotheses. Students gain understanding of how Tinbergian framework can be applied to understanding developmental characteristics; ability to conceive of and perform formal systematic review; skills necessary to create and interpret phylogenies; and framework for applying lenses of behavioral ecology, neuroscience, and evolutionary biology to better understand coming of age on planet Earth. Letter grading.

**C172. Advanced Statistics in Ecology and Evolutionary Biology (4)** Lecture, two hours; laboratory, two hours. Enforced Requisite: Life Sciences 40 or Statistics 10 or 13. Overview of and application of advanced statistical methods that go beyond linear models and mean comparison, including bootstrapping, permutations, Bayesian statistics, mixed models, clustering, and network analysis. At course end students should be able to explain which statistical approaches are appropriate for different types of research questions and critically evaluate their outputs. All statistical analysis conducted in R. Concurrently scheduled with course C202. P/NP or letter grading.

**CM173. Earth Process and Evolutionary History (6)** (Same as Earth, Planetary, and Space Sciences CM173.) Lecture, four hours; laboratory, three hours. Requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, and 4, or 7A, 7B, and 7C (or 7A and introductory course in geology). Exploration of relationship between physical processes, such as tectonics and climate, and how they affect surface and impact biology of Earth. Study of evolution of universe, Earth, and life, with integration of history of science, including Darwinian evolution and plate tectonics revolutions. Study of formation of matter offers tools to understand geologic process of climate and ecology of Earth. Past climate change to examine expected future human-influenced climate. Consideration of major events in history of life on Earth. Data and methods from geology, genetics, and geochemistry are integrated to reconstruct past events. This reveals how Earth processes shaped life and how life shaped Earth. Concurrently scheduled with course CM228. Letter grading.

**C174. Comparative Biology and Macroevolution (4)** Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1 or 7B. Recommended: one introductory statistics course. Modern comparative biology provides framework for studying broad questions in evolution—How do body shapes evolve? What are dynamics of evolutionary arms race? Why are there so many species in tropics? Why are there so many beetles and so few crocodiles? Did dinosaurs put brakes on diversification of mammals? Examination of why tree of life is essential to understanding patterns of biological diversity and how phylogenetic comparative methods are used to test macroevolutionary hypotheses. Concurrently scheduled with course C230. Letter grading.

**175. Evolutionary Dynamics of Sex (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Fitness dynamics of reproduction when females and males are in conflict over reproductive decisions, with focus on animals with human examples as appropriate. Emphasis on natural selection thinking, sexual selection, and origins of sexual conflict, including Fisherian sex allocation, evolution of manipulation through deceptive communication, and theory of Darwinian sexual conflict. Letter grading.

**176. Ecological Ethics (4)** Seminar, four hours. Requisite: Life Sciences 1 or 7B. Debates and discussions on current ethical considerations relevant to fields of ecology, evolution, conservation, and behavior. Letter grading.

**C177. Practical Computing for Evolutionary Biologists and Ecologists (4)** Lecture, three hours; laboratory, two hours. Requisite: Life Sciences 1 or 7B. Introduction to fundamental skills needed for manipulation, analysis, and visualization of large data sets. Basic programming and scripting in Python as well as working in shell, regular expressions, and related topics. Concurrently scheduled with course C234. Letter grading.

**178. Computational Systems Biology: Modeling and Simulation of Biological Systems (5)** (Same as Bioengineering CM186, Computational and Systems Biology M186, and Computer Science CM186.) Lecture, four hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 30A, 30B, Mathematics 32A or M32T, 33A, and 33B; or Mathematics 31A, 31B, 32A or M32T, 33A, and 33B. Dynamic biosystem modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Intermediate linear and nonlinear control system, multicompartmental, epidemiological, pharmacokinetic, and other biomodeling methods applied to life sciences problems at molecular, cellular, organ, and population levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into dynamical mathematical models, and implementing them for simulation, quantification, and analysis. Numerical simulation, optimization, and parameter identifiability and search algorithms, with model discrimination and analysis and software exercises in PC laboratory assignments. Letter grading.

**C179. Communicating Science to Informal Audiences (4)** Lecture, three hours; discussion, one hour. Requisites: courses 158, 187. Science communication is essential skill for advancing scientific research and society. Students work collaboratively to communicate results of original research using formal (e.g., written paper and poster/multimedia presentation) and/or informal (e.g., video, brochure, digital media, etc.) forms of science communication. Students also create reflective communication piece (written, podcast, video) about what they learned through process of research that could be shared with broad audience. Concurrently scheduled with course C237. Letter grading.

**180A. Seminar: Biology and Society (2)** Seminar, two hours. Investigations and discussions of current socially important issues involving substantial biological considerations, either or both as background for policy and as consequences of policy. May be repeated once for credit with instructor change. Letter grading.

**180B. Seminar: Biology and Society (4)** Seminar, four hours. Investigations and discussions of current socially important issues involving substantial biological considerations, either or both as background for policy and as consequences of policy. May be repeated once for credit with instructor change. Letter grading.

**181. Parasitology (6)** Lecture, three hours; laboratory, six hours. Requisites: Life Sciences 1, 3, and 23L, or 7A, 7B, and 23L. Introduction to principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man. Letter grading.

**182. Marine Parasitology (4)** Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1 or 7B. Recommended: courses 112, 181. Five-week intensive course offered only as part of Marine Biology Quarter. Introduction to natural history and ecology of host-parasite interaction involving intertidal fish hosts. Laboratory includes collection and preparation techniques. Given off-campus at marine science center. Letter grading.

**183. Finding Ecological Solutions to Environmental Problems (4)** Seminar, two hours; discussion, two and one half hours. Requisite: course 100. Ecological practicum in which students work in teams with client (e.g., non-profit, governmental) to research and propose solutions to diverse ecological problems. Students learn practical skills to apply ecological science to solving of diverse and interdisciplinary environmental problems, in intimate and participatory environment. Students learn and are expected to produce high-quality academic work at professional level. Letter grading.

**184. Evolution, Development, and Disease (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 7B. Recommended prerequisite: course 103, 110, 120, M157, C174, or 185. Exploration of developmental mechanisms underlying evolution of animal design, including impacts of environ-

ment on these mechanisms. Exploration of what happens to animal form, including that of humans, when these developmental mechanisms are disrupted by environmental and genetic factors. Letter grading.

**185. Evolutionary Medicine (4)** Lecture, two and one half hours; discussion, one hour. Requisite: Life Sciences 1 or 7B. Not open for credit to students with credit for course 120. Designed for departmental majors specializing in environmental and population biology and in medicine. Introduction to mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation. Coverage of fundamental principles of evolution, with special focus on medicine and human health. P/NP or letter grading.

**186. Evolutionary Medicine: Clinical Perspective on Medical, Surgical, and Psychiatric Disorders (4)** Lecture, three hours; discussion, one hour. From breast cancer and heart failure to self-injury, obsessive-compulsive and eating disorders, all contemporary medical issues have evolutionary roots. Understanding of application of evolutionary thought to issues faced by physicians, veterinarians, psychologists, and other healthcare providers. Development of awareness and understanding of evolutionary roots of these disorders provides future healthcare providers with expanded perspective that enhances their practice and benefits their patients in whatever field they enter. Letter grading.

**187. Variable Topics in Ecology and Evolutionary Biology (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 4, and 23L, or 7A, 7B, 7C, and 23L. Investigation, discussion, and study of current important issues involving substantial biological considerations in ecology and evolutionary biology. Contact Undergraduate Advising Office for current topics. May be repeated for credit. P/NP or letter grading.

**188. Special Courses in Ecology and Evolutionary Biology (2)** Seminar, two hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Ecology and Evolutionary Biology (1)** Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

**191. Variable Topics Research Seminars: Ecology and Evolutionary Biology (4)** Seminar, three hours. Seminars on current issues in research in ecology and evolutionary biology. Consult Schedule of Classes for topics and instructors. If content is approved in advance by Undergraduate Advising Office, undergraduate departmental majors may petition to use course to satisfy or partially satisfy elective requirement. May be repeated for credit with consent of instructor. P/NP or letter grading.

**192A. Undergraduate Assistant in Ecology and Evolutionary Biology (4)** Seminar, 12 hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in assisting with courses related to bi-

ology. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. Consult Undergraduate Advising Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP grading.

**192B. Undergraduate Assistant in Ecology and Evolutionary Biology (2)** Seminar, six hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in assisting with courses related to biology. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. Consult Undergraduate Advising Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP grading.

**193. Journal Club Seminars: Ecology and Evolutionary Biology (1)** Seminar, two hours. Enforced corequisite: one course from 198A through 198D or 199. Limited to undergraduate students. Development of in-depth understanding of and ability to discuss current literature in field of students' own research. May be repeated for credit. P/NP grading.

**194A. Research Group or Internship Seminars: Access to Research Careers (2)** Seminar, six hours. Designed for juniors/seniors in research traineeships or those who have strong commitment to pursue graduate studies in molecular, biochemical, physiological, or biomedical fields. Weekly presentation and discussion of paper selected from current literature. No more than 4 units may be applied toward departmental majors. May be repeated for credit. Letter grading.

**194B. Research Group or Internship Seminars: Ecology and Evolutionary Biology (1)** Seminar, two hours. Corequisite: one course from 198A through 198D or 199. Designed to encourage participation and stimulate progress in specific research areas for undergraduate students who are part of departmental research group or internship. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP or letter grading.

**195. Community or Corporate Internships in Ecology and Evolutionary Biology (4)** Tutorial, 12 hours. Internship course for juniors/seniors to be supervised by Center for Community Learning, fieldwork site, and faculty adviser. Consult Undergraduate Advising Office for more information. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward requirements for departmental majors. May be repeated twice for credit. Individual contract with supervising faculty member required. P/NP grading.

**196. Research Apprenticeship in Ecology and Evolutionary Biology. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Ecology and Evolutionary Biology (4)** Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Ecology and Evolutionary Biology Department faculty for at least two terms and for total of at least 8 units. Eight units may be applied toward departmental majors. Individual contract required. In Progress grading (credit to be given only on completion of course 198B). Students may elect to enroll in additional research through courses 198C and 198D (letter grading). Report on progress must be presented to undergraduate adviser each term 198 course is taken.

**198B. Honors Research in Ecology and Evolutionary Biology (4)** Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Ecology and Evolutionary Biology Department faculty for at least two terms and for total of at least 8 units. Eight units may be applied toward departmental majors. Individual contract required. Letter grading. Students may elect to enroll in additional research through courses 198C and 198D (letter grading). Report on progress must be presented to undergraduate adviser each term 198 course is taken.

**198C. Honors Research in Ecology and Evolutionary Biology (4)** Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Ecology and Evolutionary Biology Department faculty for at least two terms and for total of at least 8 units. Eight units may be applied toward departmental majors. Students may elect to enroll in additional research through courses 198C and 198D. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Individual contract required. Letter grading.

**198D. Honors Research in Ecology and Evolutionary Biology (4)** Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Ecology and Evolutionary Biology Department faculty for at least two terms and for total of at least 8 units. Eight units may be applied toward departmental majors. Students may elect to enroll in additional research through courses 198C and 198D. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Individual contract required. Letter grading.

**199. Directed Research in Ecology and Evolutionary Biology. (2 to 4)** Tutorial, six to 12 hours. Preparation: submission of written proposal outlining study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal to be developed in consultation with instructor and submitted for approval to undergraduate adviser before day instruction begins in that term. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. At end of term culminating report describing progress of study or research and signed by student and instructor must be presented to undergraduate adviser. Only one 199 course may be applied toward departmental majors. May be repeated for credit. Individual contract required. Letter grading.

## Graduate

**200A. Evolutionary Biology (4)** (Formerly numbered M200A.) Lecture, two hours; discussion, two hours. Current concepts and topics in evolutionary biology, including microevolution, speciation and species concepts, analytical biogeography, adaptive radiation, mass extinction, community evolution, molecular evolution, and development of evolutionary thought. S/U or letter grading.

**200B. Ecology (4)** Lecture, two hours; discussion, two hours. Principles and current topics in ecology. Topics may include island biogeography, disturbance ecology, chemical ecology, and physiological ecology. S/U or letter grading.

**200C. Advanced Animal Behavior (4)** Lecture, two hours; discussion, two hours. Survey of major topics in field of behavioral ecology. Topics include introduction to variety of research pursuits in field and questions and debates at leading edges of research. Advanced interdisciplinary primer that spans topics from mechanisms of behavior at molecular and cellular levels to consequences of behavior for Darwinian fitness and ecological and evolutionary processes. S/U or letter grading.

**201. Introduction to R for Ecology and Evolutionary Biology (1)** Lecture, six hours; discussion, six hours. Designed for departmental PhD students. Offered as intensive two-day course at beginning of term. Introduction to R language. Topics include working at command line, writing scripts and functions, flow control, graphics, and conducting basic simulations in discrete and continuous time. S/U grading.

**C202. Advanced Statistics in Ecology and Evolutionary Biology (4)** Lecture, two hours; laboratory, two hours. Enforced Requisite: Life Sciences 40 or Statistics 10 or 13. Overview of and application of advanced statistical methods that go beyond linear models and mean comparison, including bootstrapping, permutations, Bayesian statistics, mixed models, clustering, and network analysis. At course end students should be able to explain which statistical approaches are appropriate for different types of research questions and critically evaluate their outputs. All statistical analysis conducted in R. Concurrently scheduled with course C172. S/U or letter grading.

**203. Marine Botany and Physiology (4)** Lecture, two hours; discussion, one hour; laboratory, six hours; experimental project. Designed for graduate students. Structure, reproduction, life histories, and biology of marine algae, with emphasis on physiological ecology and biochemistry. Techniques in culture and physiological, ecological, and biochemical investigation of algae. Given off campus at marine science center. S/U or letter grading.

**204. Advanced Biology of Algae (4)** Lecture, four hours; discussion, one hour. Consideration of current research in experimental phycology. Topics include discussion of appropriate aspects of chemical and physical oceanography and limnology; algal physiology; biochemistry, physiological ecology, and algal processes in ocean and freshwater habitats. S/U or letter grading.

**205. Marine Invertebrate Biology (4)** Lecture, four hours; laboratory, eight hours. Functional morphology, life histories, and systematics of marine invertebrates of all major and most minor taxa; emphasis on living animal and its habitat. Given off campus at marine science center. S/U or letter grading.

**206. Advanced Ichthyology (4)** Lecture, three hours; laboratory, three hours. Requisite: course 111 or 112. Advanced study of various aspects of fish biology. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

**208. Advanced Vertebrate Morphology (4)** Lecture, two hours; laboratory, eight hours. Requisite: course 110. Emphasis on functional approach to evolution of vertebrate locomotor, feeding, and circulatory systems. Laboratory includes comparative and experimental analyses of morphological adaptation. Independent project required. May be repeated once for credit. S/U or letter grading.

**209. Behavior of Arthropods (4)** Lecture, three hours; discussion, one hour. Advanced study of topics in behavior of terrestrial arthropods, including communication, feeding, reproductive, and social behavior. Emphasis on both mechanistic and adaptive approaches toward understanding behavior. Independent project required. S/U or letter grading.

**210. Advanced Ornithology (4)** Lecture, two hours; laboratory, two hours; fieldwork, two hours. Requisite: course 114A. Advanced study of topics in modern avian biology. Emphasis on experimental approaches to investigations of physiology (energetics, nutrition, osmoregulation), ecology (population and community organization), and behavior (foraging, breeding, sociality). S/U or letter grading.

**217. Marine Ecology (4)** Lecture, four hours; discussion, one hour. Designed for graduate students. Structure, diversity, and energetics of marine communities; behavior, population dynamics, and biogeography of component species; associated oceanography and geology. Given off campus at marine science center. S/U or letter grading.

**218. Oceanology (4)** Lecture, four hours; discussion, one hour. Designed for graduate students. Ecology and dynamics of pelagic and benthic associations; physicochemical properties of seawater and marine substrates and their biological significance; qualitative and quantitative methods of oceanology. Given off campus at marine science center. S/U or letter grading.

**C219A. Mathematical and Computational Modeling in Ecology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 30B or Mathematics 3B or 31A. Recommended: courses 100, 122, Life Sciences 1 or 7B, Mathematics 3C. Introduction to modeling dynamics of ecological systems, including formulation and analysis of mathematical models, basic techniques of scientific programming, probability and stochastic modeling, and methods to relate models to data. Examples from ecology but techniques and principles applicable throughout life and physical sciences. Concurrently scheduled with course C119A. S/U or letter grading.

**C219B. Modeling in Ecological Research (4)** Lecture, two hours; discussion, two hours. Recommended prerequisite: course C219A. Advanced techniques in mathematical and computational modeling of ecological dynamics and other population dynamic problems. Independent research projects developed by students. Topics include model formulation, stochastic models, fitting models to data, sensitivity analysis, presentation of model results, and other topics from current literature. Concurrently scheduled with course C119B. S/U or letter grading.

**220. Conservation Science: Theory and Practice (3)** Lecture, three hours. Limited to graduate students. Conceptual foundations of conservation science and its applications to real-world conservation problems. Designed for students who intend to be academic researchers and want to learn about conservation in way that can make research immediately relevant, and those who intend to be conservation practitioners and want to be exposed to cutting-edge theory and thinking to tackle today's complex conservation challenges. May be repeated for credit. S/U grading.

**224. Marine Molecular Biology (8)** Lecture, three hours; laboratory, eight hours. Preparation: background in marine sciences, basic cell biology and biochemistry. Ten-week intensive course designed to train marine biologists in advanced techniques of cell and molecular biology. Independent project required. Given off campus at marine science center. S/U or letter grading.

**226. Global Health Measures for Biological Emergencies (4)** (Same as Epidemiology M226.) Lecture, four hours. Requisite: Epidemiology 220. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading.

**CM228. Earth Process and Evolutionary History (6)** (Same as Earth, Planetary, and Space Sciences CM273.) Lecture, four hours; laboratory, three hours. Requisites: Chemistry 14A, 14B (or 20A, 20B), Life Sciences 1, 2, 3, and 4, or 7A, 7B, and 7C (or 7A and introductory course in geology). Exploration of relationship between physical processes, such as tectonics and climate, and how they affect surface and impact biology of Earth. Study of evolution of universe, Earth, and life, with integration of history of science, including Darwinian evolution and plate tectonics revolutions. Study of formation of matter offers tools to understand geologic process of climate and ecology of Earth. Past climate change to examine expected future human-influenced climate. Consideration of major events in history of life on Earth. Data and methods

from geology, genetics, and geochemistry are integrated to reconstruct past events. This reveals how Earth processes shaped life and how life shaped Earth. Concurrently scheduled with course CM173. Letter grading.

**C230. Comparative Biology and Macroevolution (4)** Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1 or 7B. Recommended: one introductory statistics course. Modern comparative biology provides framework for studying broad questions in evolution—How do body shapes evolve? What are dynamics of evolutionary arms race? Why are there so many species in tropics? Why are there so many beetles and so few crocodiles? Did dinosaurs put brakes on diversification of mammals? Examination of why tree of life is essential to understanding patterns of biological diversity and how phylogenetic comparative methods are used to test macroevolutionary hypotheses. Concurrently scheduled with course C174. S/U or letter grading.

**231. Molecular Evolution (4)** (Same as Earth, Planetary, and Space Sciences M217.) Lecture, two hours; discussion, two hours. Series of advanced topics in molecular evolution, with special emphasis on molecular phylogenetics. Topics may include nature of genome, neutral evolution, molecular clocks, concerted evolution, molecular systematics, statistical tests, and phylogenetic algorithms. Themes may vary from year to year. May be repeated for credit. S/U or letter grading.

**232. Evolutionary Ecology (4)** (Formerly numbered 232.) (Same as Biomathematics M212.) Lecture, two and one half hours. Requisite: course M200A or 200B, or equivalent. Concepts and topics include fundamental concepts of evolutionary ecology, including life history theory, quantitative genetics and phenotypic evolution, and advances made in field in last decade. May be repeated for credit. Letter grading.

**233. UCLA/La Kretz Workshop in Conservation Genomics (2)** Lecture, two hours; discussion, one hour; laboratory, two hours. Five-day field experience at La Kretz Center Field Station and Stunt Ranch in Santa Monica Mountains. Conservation biology and genetics have had long and intimate relationship and constitute one key application of evolutionary analysis to real-world biological problems. Impacts of population genetics, phylogenetics, and phylogeography have been particularly striking for conservation biology and have helped solve some of most pressing problems in biological conservation. Annual workshop to provide training environment for small group of motivated graduate students to explore how conservation problems can best be addressed with genomic-level data. Hands-on experience on efficient collection, troubleshooting, and analysis of large datasets for conservation-relevant problems. Active participation from members of several U.S. government agencies at forefront of endangered species protection and management, providing forum for exploring relevant aspects of conservation genomics to managers. S/U grading.

**C234. Practical Computing for Evolutionary Biologists and Ecologists (4)** Lecture, three hours; laboratory, two hours. Requisite: Life Sciences 1 or 7B. Introduction to fundamental skills needed for manipulation, analysis, and visualization of large data sets. Basic programming and scripting in Python as well as working in shell, regular expressions, and related topics. Concurrently scheduled with course C177. Letter grading.

**C235. Population Genetics (4)** Lecture, three hours; discussion, one hour. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. Concurrently scheduled with course C135. S/U or letter grading.

**236. Seminar: Marine Molecular Biology (4)** Seminar, 10 hours. Requisite: course 224. Seminar on current issues and work in marine molecular biology. Given off campus at marine science center. S/U or letter grading.

**C237. Communicating Science to Informal Audiences (4)** Lecture, three hours; discussion, one hour. Requisites: courses 158, 187. Science communication is essential skill for advancing scientific research and society. Students work collaboratively to communicate results of original research using formal (e.g., written paper and poster/multimedia presentation) and/or informal (e.g., video, brochure, digital media, etc.) forms of science communication. Students also create reflective communication piece (written, podcast, video) about what they learned through process of research that could be shared with broad audience. Concurrently scheduled with course C179. Letter grading.

**238. Ocean Biogeochemical Dynamics and Climate (4)** (Same as Atmospheric and Oceanic Sciences M235.) Lecture, three hours. Interaction of ocean biogeochemical cycles with physical climate system. Biogeochemical processes controlling carbon dioxide and oxygen in oceans and atmosphere over time-scales from few million years to several years. Anthropogenic perturbation of global carbon cycle and climate. Response of ocean ecosystems to past and

future global changes. Use of isotopes to study ocean biogeochemical cycles and climate. Interactions between biogeochemical cycles on land and in ocean. S/U or letter grading.

**240. Physiology of Marine Animals (4)** Lecture, four hours; discussion, one hour. Designed for graduate students. Lecture and laboratory studies on cellular, tissue, organ, and animal physiology; regulatory biology; metabolic characteristics of cells, energy transformations. Given off campus at marine science center. S/U or letter grading.

**C242. Behavioral Ecology (4)** Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1 or 7B, Mathematics 3C or 32A or Life Sciences 30B. Recommended: course 129. Evolutionary perspective of behavioral ecology, with extended consideration of selfish DNA, conflict with genomes, natural selection and coevolution, kin selection and diversity in group functioning and cooperation, social learning, game theory and alternative life histories, and human behavioral ecology. Concurrently scheduled with course C126. Letter grading.

**243. Animal Communication (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C or 32A, and Physics 1C and 4BL, or 6C or 6CH. Physical properties of animal signals and physiological mechanisms underlying their generation and reception. Lectures treat signal analysis, signal transmission, and receptor design in light of constraints placed on each sensory modality. Examples of communication systems using visual, auditory, chemical, electrical, and magnetic cues, with emphasis on biological adaptations for efficiently signaling species-specific information. S/U or letter grading.

**244. Advanced Insect Physiology (4)** Lecture, two hours; laboratory, five hours. Detailed discussion of current problems in insect physiology, with advanced laboratory. S/U or letter grading.

**C246. Conservation Genetics (4)** Lecture, three hours; discussion, one hour. Requisites: course 150 or Life Sciences Lecture three hours; discussion, one hour. Requisites: course 150 or Life Sciences 170, Life Sciences 7A, 7B, 7C. Conservation genetics is interdisciplinary field that integrates genetic methods and concepts from population genetics, evolutionary biology, molecular ecology, and systematics to understand how to conserve and manage populations and species of natural organisms, and understand genetic processes underlying why some go extinct. Case studies of plants and animals cover range of topics including habitat loss, population size, and inbreeding depression; landscape change and genetic connectivity of populations; climate change and local adaptation; management of wild and natural populations; and invasive species. Concurrently scheduled with course C146. S/U or letter grading.

**247. Advanced Plant Biology (4)** Lecture, three hours; discussion, two hours. Requisite: course 162 or Molecular, Cell, and Developmental Biology C141. Open to undergraduates with consent of instructor. Designed to expose first-year graduate students to topics of current interest in plant biology. Subjects include plant genetics, growth and development, organelle structure, development and function, and plant-specific metabolic processes (photosynthesis, nitrogen fixation, metabolism of small molecules). S/U or letter grading.

**250. Professional Skills for Biological Research. (2 to 3)** Seminar, two hours. Preparation, writing, and submission of research proposals. Collection and maintenance of field and laboratory data, preparation of scientific presentations, review of literature, and publishing strategies. Optional field trip offered during some years for 1 extra unit. S/U or letter grading.

**251. Seminar: Systematics (2)** Seminar, two to four hours. Current topics in systematic biology, including methods development and specific applications in study of phylogeny. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

**253. Seminar: Plant Structure (2)** Seminar, two hours. S/U or letter grading.

**255. Seminar: Invertebrate Zoology (2)** Seminar, two hours. S/U or letter grading.

**259. Seminar: Herpetology (2)** Seminar, three hours. Seminar on current approaches to herpetology. Main theme varies from year to year in areas such as biogeography, ecology, behavior, environmental physiology. S/U or letter grading.

**260. Seminar: Biology of Terrestrial Vertebrates (2)** Seminar, two hours. S/U or letter grading.

**261. Molecular Ecology of Plant Populations (2)** Seminar, two hours. Requisite: course M200A. Integration of ecological, population genetic, and evolutionary concepts to understand evolutionary ecology and conservation biology of plant populations in natural and disturbed settings, with application to both terrestrial and marine systems. Letter grading.

**263. Seminar: Population Genetics. (2, 4)** Seminar, three to six hours. Seminar on topics of current interest in population genetics, such as kin selection, sociobiology, cultural evolution, conservation genetics, etc. S/U or letter grading.

**264. Seminar: Stomatal Function (4)** Seminar, two hours; discussion, two hours. Open to undergraduates with consent of instructor. Structure and function of guard cells; gas exchange; environmental and hormonal regulation of stomatal responses; sensory transduction; stomatal adaptations. S/U or letter grading.

**265. Seminar: Biophysical Plant Ecology (2)** Seminar, two hours. S/U or letter grading.

**267. Seminar: Current Topics in Evolutionary Ecology (2)** Seminar, two hours. S/U or letter grading.

**268. Seminar: Population Biology (2)** Seminar, two hours. S/U or letter grading.

**269. Seminar: Animal Ecology (2)** Seminar, three hours. Advanced study of specific topics in animal ecology and related fields. S/U or letter grading.

**270. Seminar: Environmental Physiology (2)** Seminar, two hours. S/U grading.

**271. Seminar: Phycology and Mycology (2)** Seminar, two hours. Requisite: course 101. Advanced study in biology of algae and fungi. Topics in physiological ecology, physiology, and biochemistry of algae and fungi, and their industrial uses. Algae and fungi as experimental organisms. Phylogeny and origin of eukaryote organisms. Evolutionary origin of chloroplasts. S/U or letter grading.

**272. Seminar: Marine Biology (2)** Seminar, two hours. S/U or letter grading.

**273. Seminar: Entomology (2)** Seminar, two hours. Discussion of specific topics in entomology and related fields. Main theme varies from year to year, but usually emphasizes areas such as behavior, ecology, and evolution. S/U grading.

**274. Seminar: Behavioral Ecology (2)** Seminar, two hours. Discussion of theoretical and empirical aspects of topics in behavioral ecology. S/U or letter grading.

**279. Seminar: Evolutionary Biology (2)** Seminar, two hours. Requisite: course M231. Emphasis on particular issue in evolutionary biology, varying in topic whenever offered. Topics may include advances in phylogenetic methodology; relationship between development and evolution; biogeography, climate change, and faunal evolution; dispersal mechanisms and macroevolutionary patterns; adaptation and diversification; macroevolutionary patterns in fossil record. S/U or letter grading.

**282. Seminar: Ichthyology (2)** Seminar, two hours. Requisite: course 111 or 112. Student presentations and discussion of specific topics in ichthyology. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

**286. Seminar: Statistical Problem Solving for Population Biology (2)** (Same as Statistics M286.) Seminar, two hours. Designed for graduate students. Statistical solutions to complex data analysis and/or experimental design problems encountered by biology graduate students in their own research. S/U or letter grading.

**288. Seminar: Plant Cell Biology (2)** Seminar, two hours. Recommended preparation: course 162. S/U or letter grading.

**290. Seminar: Comparative Physiology (2)** (Same as Physiological Science M290.) Seminar, two and one half hours. Discussion of specific topics in comparative physiology of animals. Topics vary from year to year, with emphasis on systems physiology, neuroethology, or behavioral physiology. S/U or letter grading.

**291. Seminar: Physiology and Biochemistry of Arthropods (2)** Seminar, two hours. S/U or letter grading.

**296. Seminar: Ecology and Evolutionary Biology. (1 to 4)** Seminar, three hours. Advanced study and analysis of current topics in cellular, organismic, and population biology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U or letter grading.

**297. Selected Topics in Ecology and Evolutionary Biology. (1 to 4)** Seminar, one to three hours. Advanced study and analysis of variable research topics in research issues in ecology and evolutionary biology. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. S/U or letter grading.

**299. Seminar: Parasitology (2)** Seminar, two hours. S/U or letter grading.

**495. Preparation for Teaching Biology in Higher Education (2)** Seminar, to be arranged. Designed for graduate students. Study of problems and methodologies in teaching biology, which includes workshops, seminars, apprentice teaching, and peer observation. S/U grading.

**496. Preparation for Teaching Biology in Higher Education (2)** Lecture, two hours. Designed for graduate students. Strongly recommended as sequel to course 495 discussions on teaching, theory, and development of advanced skills. Study of methods and approaches to teaching of specific areas in biology, with emphasis on laboratory teaching, instructor/student interaction, and undergraduate motivation. S/U grading.

**596. Directed Individual (or Tutorial) Studies. (2 to 12)** Tutorial, to be arranged. Letter grading.

**596F. Directed Individual (or Tutorial) Studies. (2 to 8)** Tutorial, to be arranged. Given off campus at marine science center. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. May not be applied toward MA or PhD course requirements. S/U grading.

**598. MA Thesis Research and Writing. (2 to 12)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Writing. (2 to 12)** Tutorial, to be arranged. S/U grading.

# Economics

## Economics Courses

### Lower Division

**1. Principles of Economics (4)** Lecture, three hours; discussion, one hour. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on allocation of resources and distribution of income through price system. P/NP or letter grading.

**2. Principles of Economics (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 1. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregate economics, including national income, monetary and fiscal policy, and international trade. P/NP or letter grading.

**3A. Introduction to Investments (2)** Lecture, two hours. Broad introduction to investments. No previous financial, economic, or math background needed. Students learn organizing framework with which to understand investing landscape with highlight on key concepts and functionality related to business and personal investments. Topics include why financial markets exist and how they work, efficient market hypothesis, risk versus reward, investment styles, valuation techniques, simple quantitative analysis, power of compound interest, financial crises, and role private equity, venture capital, innovation and start-ups, and personal financial advisers. Serves as excellent introduction to career paths in finance and for those who want to increase their financial literacy. P/NP grading.

**3B. Introduction to Investments (2)** Lecture, two hours. Requisite: course 3A. Broad introduction to investments. No previous financial, economic, or math background needed. Students learn organizing framework with which to understand investing landscape with highlight on key concepts and functionality related to business and personal investments. Topics include exchange rates, central banks, financial statements, value creation, interpreting financial ratios, power of compound interest and understanding present value, diversification, capital asset pricing model, Sharpe ratio, and understanding asset's beta, hedge funds. Serves as excellent introduction to career paths in finance and for those who want to increase their financial literacy. P/NP grading.

**4. Introduction to Investments (4)** Lecture, two hours. Broad introduction to investments. No previous financial, economic, or math background needed. Students learn organizing framework with which to understand investing landscape with highlight on key concepts and functionality related to business and personal investments. Topics include why financial markets exist and how they work, efficient market hypothesis, risk versus reward, investment styles, valuation techniques, simple quantitative analysis, power of compound interest, financial crises, and role private equity, venture capital, innovation and start-ups, personal financial advisers, exchange rates, central banks, financial statements, value creation, interpreting financial ratios, understanding present value, diversification, capital asset pricing model, Sharpe ratio, and understanding asset's beta, hedge funds. Serves as excellent introduction to career paths in finance and for those who want to increase their financial literacy. P/NP or letter grading.

**5. Economics for Everyone (5)** Lecture, three hours; discussion, one hour. Introduction to models and tools used by economists in practical real-world context. Study of important topical issues such as inequality, health care, and environmental policies. Students learn about available data sources and become better equipped to understand current events. May not be used to fulfill entrance requirements for any Economics Department major. P/NP or letter grading.

**10P. Economics Toolkit: Introduction to Python for Economists (4)** Lecture, three hours. Python is commonly used programming language for data science. It is powerful and easy to learn tool that can be applied to make simple histograms or fit complicated machine learning models. Introduction to using Python for basic data exploration, analysis, and visualization. Emphasis on applications with economic data and econometric analysis. P/NP grading.

**10R. Economics Toolkit: Introduction to R for Economists (4)** Lecture, three hours. Hands-on introduction to data analysis in economics using R. Covers essential mathematical tools and introduces mechanics of R. No prior knowledge of R, computer programming, statistics, or economics is required. P/NP grading.

**11. Microeconomic Theory (4)** Lecture, three hours; discussion, one hour. Enforced requisites: course 1, Mathematics 31B, with grades of C or better. Laws of demand, supply, returns, and costs; price and output determination in different market situations. P/NP or letter grading.



**12. Introduction to Personal Finance (4)** Lecture, three hours; discussion, one hour. Introduction to personal finance. No previous financial, economic, or mathematics background required. Open to nonmajors. Covers wide array of topics at introductory level that are of interest to students on practical level and more broadly for students seeking to deepen their understanding of key features of financial system, financial institutions, and various aspects of personal finance encountered by typical household over their life cycle. Topics covered include interest rates, time value of money, types of loans most relevant to typical household, credit and debit cards, savings and investment, stocks and bonds, risk and diversification, personal income taxes, varieties of insurance, retirement and savings plans, macroeconomic concepts, social security, Medicare, and aspects of behavioral economics. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**41. Probability and Statistics for Economists (4)** Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B, with grades of C or better. Not open to students with credit for former Statistics 11. Introduction to theory and practice of mathematical statistics with emphasis on its use in economics. Introduction of basic statistical concepts such as random variables, probability distributions, estimation, confidence intervals, and hypothesis testing. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Economic Toolkit (4)** Lecture, three hours. Coverage of essential mathematical and programming skills needed for study of Economics. Review of calculus (first derivatives, partial derivatives, elementary integral calculus), Excel (handling data, using simple arithmetical, mathematical, and financial functions, use of Solver), and extended introduction to statistical language R and/or Stata. Consult instructor for specific software. Offered in summer only. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Microeconomic Theory (4)** Lecture, three hours; discussion, one hour. Requisite: course 11. Theory of factor pricing and income distribution, general equilibrium, implications of pricing process for optimum allocation of resources, game theory, and interest and capital. P/NP or letter grading.

**102. Macroeconomic Theory (4)** Lecture, three hours; discussion, one hour. Requisites: courses 2, 101. Theory of income, employment, and price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy. P/NP or letter grading.

**103. Introduction to Econometrics (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 11, and 41 or Mathematics 170A and 170B or 170E and 170S or Statistics 100A and 100B. Enforced corequisite: 103L. Introduction to theory and practice of univariate regression analysis with emphasis on its use in economics. Introduction to method of least squares, Gauss-Markov theorem, confidence intervals and hypothesis tests in univariate regression context, and standard errors in case of heteroscedasticity and serial correlation. Emphasis on applications with real data and computer software (R programming language) to implement discussed methods. P/NP or letter grading.

**103L. Econometrics Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, and 41 or Mathematics 170A and 170B or 170E and 170S or Statistics 100A and 100B. Enforced corequisite: 103. Econometric analysis of case-based studies. Hands-on data collection and problem solving. Use of econometric software. P/NP or letter grading.

**104. Data Science for Economists (4)** Lecture, three hours; laboratory, one hour. Enforced requisites: courses 11, 103. Enforced corequisite: course 104L. In-depth discussion of multivariate regression. Introduction to estimation of multivariate regression, and confidence intervals and hypothesis tests in context of multivariate regression. Discussion of instrumental variables and binary choice models. Emphasis on hands-on experience on data analytics and real data applications. P/NP or letter grading.

**104L. Data Science for Economists Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 103. Enforced corequisite: course 104. Econometric analysis of case-based studies. Hands-on data collection and problem solving. Use of econometric software. P/NP or letter grading.

**106A. Economics in Practice (4)** Seminar, three hours. Enforced requisites: courses 11, 101, 102. Enforced corequisite: course 106AL. Students, in groups of four, address three small problems and one large and more complex problem. Discussion of student-proposed solutions to problems in their groups, with small-group discussions to student presentations of results in class. Detailed coaching and feedback by MBA students on student analysis and presentations. Final written and oral presentations required. P/NP or letter grading.

**106AL. Economics in Practice Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 102. Enforced corequisite: course 106A. Case-based analysis requiring students to apply material from course 106A to real-world problems regarding issues such as economic theory and empirical methods. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**106D. Designed Markets (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. Enforced corequisite: course 106DL. Discussion of markets and other institutions that were purposefully designed, mostly by economists. Choices designers face when designing such markets. Markets and their context and corresponding economic models. Topics include matching between medical residents and hospitals, matching between high school students and New York and Boston high schools, kidney transplants, course allocation in business schools, eBay auctions, and prediction markets. Examination of how to optimize one's actions and outcomes in such markets. P/NP or letter grading.

**106DL. Designed Markets Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101. Enforced corequisite: course 106D. Case-based analysis requiring students to apply material from course 106D to real-world problems regarding topics such as matching between medical residents and hospitals, matching between high school students and New York and Boston high schools, kidney transplants, course allocation in business schools, eBay auctions, and prediction markets. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**106E. Economics of Entrepreneurship (4)** Lecture, three hours. Requisite: course 101. Enforced corequisite: course 106EL. Enrollment priority to Business Economics majors. Application of economic theory to practice of managing new businesses—combining elements of strategy, marketing, and entrepreneurial finance courses. Examination of both strategic decisions of entrepreneurs (pricing, advertising, deterring entry) and more practical issues (funding, business plans, patents). Letter grading.

**106EL. Economics of Entrepreneurship Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 106E. Case-based analysis requiring students to apply material from course 106E to real-world problems regarding topics involving combining elements of strategy, marketing, and entrepreneurial finance courses. Examination of both strategic decisions of entrepreneurs (pricing, advertising, deterring entry) and more practical issues (funding, business plans, patents). Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**106F. Finance (4)** Lecture, three hours. Requisite: course 102. Enforced corequisite: course 106FB. Not open for credit to students with credit for Management 130A. Only one course from Economics 106F and Management 130A may be applied toward Economics and Business Economics majors. Enrollment priority to Business Economics majors. Introduction to principles of asset valuation and role of financial markets in market economy. Basic topics include time value of money, discounted cash flow analysis, CAPM model, and applications to public policy. P/NP or letter grading.

**106FB. Finance Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 102. Enforced corequisite: course 106F. Case-based analysis requiring students to apply theory from course 106F to real-world problems regarding topics such as discounted cash flow analysis, CAPM model, applica-

tions to public policy, and more. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**106G. Introduction to Game Theory (4)** Lecture, three hours; discussion, one to two hours (when scheduled). Requisite: course 101. Enforced corequisite: course 106GL. Enrollment priority to Business Economics majors. Introduction to basic ideas of game theory and strategic thinking. Discussion of ideas such as dominance, backward induction, Nash equilibrium, commitment, credibility, asymmetric information, and signaling, with application to examples from economics, politics, business, and other real-life situations. Letter grading.

**106GL. Introduction to Game Theory Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 106G. Case-based analysis requiring students to apply material from course 106G to real-world problems involving game theory and strategic thinking in economics, politics, business, and other real-life situations. Hands-on data collection and problem solving and presentation of student analyses in writing with possible oral presentations. P/NP or letter grading.

**106I. Organization of Firms (4)** Lecture, three hours. Enforced requisites: courses 11, 101. Enforced corequisite: course 106IL. Enrollment priority to Business Economics majors. Role of firms in traditional economic theory and modern developments in theory of firms. Topics include relationship between employer and employee, principal-agent models and moral hazard, formal versus relational contracts, successful firms as coherent systems of mutually supporting parts, property rights and asset ownership, boundaries of firms, employment versus independent contracting, internal organization of firms, role and levels of firm hierarchy. P/NP or letter grading.

**106IL. Organization of Firms Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 101. Enforced corequisite: course 106I. Case-based analysis requiring students to apply material from course 106I to real-world problems. Hands-on data collection and problem solving and presentation of student analyses in writing and with oral presentations. P/NP or letter grading.

**106M. Financial Markets and Financial Institutions (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 101, 102. Enforced corequisite: course 106ML. Application of analytical tools of economics and finance to real-world problems in financial markets to link models students have learned in prior courses to patterns observed in financial markets and to understand when it is that further theoretical refinements are required to better account for certain observed patterns. Development of understanding of potential effects of monetary and regulatory policies on financial markets. Topics include bond market, stock market, foreign exchange market, financial crises, and financial regulation. Analysis and discussion of lessons of subprime crisis and European sovereign debt crisis. P/NP or letter grading.

**106ML. Financial Markets and Financial Institutions Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 102. Enforced corequisite: course 106M. Case-based analysis requiring students to apply material from course 106M to real-world problems involving financial markets and financial institutions. Issues include potential effects of monetary and regulatory policies on financial markets. Topics include bond market, stock market, foreign exchange market, financial crises, and financial regulation. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**106P. Pricing and Strategy (4)** Lecture, three hours. Requisite: course 101. Enforced corequisite: course 106PL. Enrollment priority to Business Economics majors. Advanced pricing topics typically include linear programming and shadow pricing, peak load pricing, two-part pricing, strategic pricing, and auctions and bidding. Letter grading.

**106PL. Pricing and Strategy Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 106P. Case-based analysis requiring students to apply material from course 106P to real-world problems involving linear programming and shadow pricing, peak load pricing, two-part pricing, strategic pricing, and auctions and bidding. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

**106S. Competitive Strategy (4)** Lecture, three hours. Enforced requisites: courses 11, 101. Enforced corequisite: course 106SL. Examination of competitive strategy and competitive advantage using game theoretic models and case studies. Topics include economics of scale, network effects, switching costs, and platform markets. Written final project and presentation required. P/NP or letter grading.

**106SL. Competitive Strategy Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 101. Enforced corequisite: course 106S. Case-based analysis requiring students to apply material from course 106S. Hands-on data collection and problem solving and presentation of student analyses in writing and with oral presentations. P/NP or letter grading.

**106T. Economics of Technology and E-Commerce (4)** Lecture, three hours. Requisites: courses 11, 101. Enforced corequisite: course 106TL. Use of rigorous economic tools to analyze world of technology and e-commerce. Examination of economic theory, empirical analysis, and case studies to study variety of new markets. Topics include bidding in online auctions, two-sided markets, matching markets, and reputation mechanisms. Written case on one particular firm and presentation required. P/NP or letter grading.

**106TL. Economics of Technology and E-Commerce Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101. Enforced corequisite: course 106T. Case-based analysis requiring students to apply theory from course 106T to real-world problems regarding issues such as bidding in online auctions, two-sided markets, matching markets, reputation mechanisms, and more. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**106V. Investments (4)** Lecture, three hours. Requisite: course 102. Recommended: course 106F. Enforced corequisite: course 106VL. Enrollment priority to Business Economics majors. Introduction to principles investment and portfolio theory. Topics include optimal portfolio construction, fixed income analysis, option pricing theory, and active portfolio management. P/NP or letter grading.

**106VL. Investments Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 102. Recommended: course 106F. Enforced corequisite: course 106V. Case-based analysis requiring students to apply theory from course 106V to real-world problems regarding issues such as portfolio management, option pricing, and other investment topics. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**107. History of Economic Theory (4)** Lecture, three hours. Enforced requisites: courses 11, 101, 102. Survey of economic analysis from Grecian antiquity to early 20th century, concentrating on 18th and 19th centuries; special attention to selected writers, including Aristotle, mercantilists, Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, marginalists, and Marshall. P/NP or letter grading.

**111. Theories of Development (4)** Lecture, three hours. Requisites: courses 11, 101, 103. Corequisite: course 111L. Application of theoretical and empirical tools from microeconomics to provide insights into problems confronting low-income countries today and to evaluate policies that are likely to be effective in improving well-being of poorest on globe. P/NP or letter grading.

**111L. Theories of Development Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 103. Corequisite: course 111. Case-based analysis requiring students to apply material from course 111 to real-world problems involving development. Topics and analysis include measures of development, sources of economic growth and development, impediments to development, and policy prescriptions. P/NP or letter grading.

**112. Policies for Economic Development (4)** Lecture, three hours. Requisite: course 102 or 111. Suggested strategies for economic development: inflation, balanced growth, industry versus agriculture, import substitution, export-oriented expansion, foreign aid, and others. Selected case studies. P/NP or letter grading.

**112A. International Development (4)** (Same as Public Policy CM171.) Lecture, three hours. Requisite: course 102 or 111. Why are some countries rich, while other countries are poor? What can policymakers do to reduce poverty? Discussion of current research on these questions. Study of both methodologies used to answer questions in development economics, like natural experiments and randomized control trials, as well as relationship between development and institutions, education, growth, culture, and gender. Reading intensive, seminar-style course. Students are expected to read academic articles in economics and actively participate in discussions. Students also learn how to use data to evaluate policies. P/NP or letter grading.

**113. Globalization and Gender (4)** Lecture, three hours. Requisite: course 11. Examination of gender dimensions of economic development and globalization from perspective of feminist economics. This perspective implies foregrounding labor, broadly defined to include paid and unpaid work; examining gender differences in work; access to resources; and well-being outcomes; and how these are affected by macroeconomic policies and how gender inequalities are relevant for societal well-being. Since early 1980s economic globalization has been achieved on basis of common set of macroeconomic policies pursued in industrial and developing countries alike. These policies frame both gender-differentiated impacts of policy and initiatives that are im-

plemented to reduce inequalities between men and women. Examination of impact of these policies on gender inequalities in developing countries. P/NP or letter grading.

**121. International Trade Theory (4)** Lecture, three hours; discussion, one hour. Requisite: course 101. Corequisite: course 121L. Not open to students with credit for former course 120. Theory of international trade: bases, direction, terms, volume, and gains of trade. Effects of tariffs, quantitative restrictions, and international integration. Effects of free and restricted trade on economic welfare and political stability. P/NP or letter grading.

**121L. International Trade Theory Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 101. Corequisite: course 121. Case-based analysis requiring students to apply material from course 121 to real-world problems involving international trade. Topics and analysis include theory of international trade: bases, direction, terms, volume, and gains of trade; effects of tariffs, quantitative restrictions, and international integration; effects of free and restricted trade on economic welfare and political stability. P/NP or letter grading.

**122. International Finance (4)** Lecture, three hours; discussion, one hour. Requisite: course 102. Enforced corequisite: course 122L. Not open to students with credit for former course 120. Emphasis on interpretation of balance of payments and adjustment to national and international equilibria through changes in price levels, exchange rates, and national income. Other topics include making international payments, determination of exchange rates under various monetary standards, capital movements, exchange controls, and international monetary organization. P/NP or letter grading.

**122L. International Finance Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 102. Enforced corequisite: course 122. Case-based analysis requiring students to apply material from course 122 to real-world problems involving international finance. Topics and analysis include balance of payments, exchange rates under various monetary arrangements, capital flows, exchange controls, and international monetary organization. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

**123. Forecasting Exchange Rates and Constructing Currency Portfolios (4)** (Formerly numbered M123.) Lecture, three hours; discussion, one hour. Requisites: courses 41, 102, 103, 103L, or consent of instructor. Enforced corequisite: course 123L. Study of main theoretical models of exchange rates and how to design computer codes to make real-time exchange rate forecasts by applying such models to real-world data. Different statistical tests to evaluate accuracy of forecasts and to assess risk-reward trade-offs of currency portfolios. Students gain applied research and presentation skills. Discussion of books and newspaper articles about financial markets and impact of economic news on exchange rates. Students expected to be familiar with use of spreadsheets, such as Excel. Coding basics is highly recommended. P/NP or letter grading.

**123L. Forecasting Exchange Rates and Constructing Currency Portfolios Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 41, 102, 103, 103L, or consent of instructor. Enforced corequisite: course 123. Hands-on approach in which students write computer codes associated with concepts learned in Economics 123. Students apply these codes to real-world data in order to generate exchange rate forecasts and evaluate prediction accuracy of their forecasting models. Students use these forecasts to construct short-long portfolios of currencies and assess reward-risk trade-offs of such portfolios. To generate and evaluate forecasts, students use TradeStation software, which can be accessed in Social Sciences Computing laboratories. P/NP or letter grading.

**C126A. Seminar: International Economics (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C285A. P/NP or letter grading.

**C126B. Seminar: International Economics (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C285B. P/NP or letter grading.

**C126C. Seminar: International Economics (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in international economics for advanced undergraduate and

graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C285C. P/NP or letter grading.

**130. Public Economics (4)** Lecture, three hours. Requisites: courses 11, 101, 103. Enforced corequisite: course 130L. Role of government in market economy. Alternative justifications for government intervention. Principles and effects of spending programs (especially social insurance and health), taxation, deficit financing, and federal credit programs. Taxation in open economy. Properties of public choice mechanisms. P/NP or letter grading.

**130L. Public Economics Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101. Enforced corequisite: course 130. Case-based analysis requiring students to apply theory from course 130 to real-world problems regarding government spending programs, taxation, deficit financing, and federal credit programs. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**131. Economics of Health and Healthcare (4)** Lecture, three hours. Requisites: courses 11, 101, 103. Enforced corequisite: course 131L. Economic analysis of health and healthcare. Presentation of several detailed economic models, including models of addiction, demand for healthcare, demand for insurance, nonprofit behavior, and other models. Evaluation of quantitative information from course readings and development of better understanding of econometric concepts and results. P/NP or letter grading.

**131L. Economics of Health and Healthcare Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 101, 103. Enforced corequisite: course 131. Case-based analysis requiring students to apply theory from course 131 to real-world problems regarding economics of health and healthcare. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**132. Topics in Taxation and Social Insurance (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. In-depth examination of selected topics related to current policy debates. Topics vary from year to year but typically emphasize tax policy or social insurance. Topics may include optimal taxation; tax inefficiencies and their implications for labor supply, savings, and investment; income redistribution and personal income tax; corporate taxation and implications for firms' investment and financing decisions; Social Security and SSDI reform; and welfare programs. P/NP or letter grading.

**133. Intergenerational Poverty in America (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 101, 103. Enforced corequisite: course 133L. Examination of how poverty influences child development and, ultimately, their income and well-being in adulthood. Overview of poverty and intergenerational mobility in America, looking at historical trends and placing U.S. in international context. To understand why poverty is persistent across generations in U.S., study of economic model of skill formation in childhood. Consideration of existing research exploring how number of factors explain intergenerational persistence of poverty, including parental time, pollution, infant and child health, justice system, neighborhoods, stress, and preschool/education systems. Discussion of evidence on whether various public policies can improve mobility. P/NP or letter grading.

**133L. Intergenerational Poverty in America Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisites: courses 11, 101, 103. Enforced corequisite: course 133. Case-based analysis requiring students to apply theory and analysis from course 133 to real-world problems regarding intergenerational poverty in America. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**134. Environmental Economics (4)** Lecture, three hours. Requisites: course 41 or Statistics 12 or 13, and course 101. Introduction to major ideas in natural resources and environmental economics, with emphasis on designing incentives to protect environment. Highlights important role of using empirical data to test hypotheses about pollution's causes and consequences. P/NP or letter grading.

**135. Economic Models of Public Choice (4)** (Same as Political Science M105.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: any lower-division political science course. Enforced requisite: course 11. Designed for juniors/seniors. Analysis of methods and consequences of arriving at collective decisions through political mechanisms. Topics include free-rider problem, voting and majority choice, demand revelation, and political bargaining. P/NP or letter grading.

**137. Introduction to Urban and Regional Economics (4)** Lecture, three hours. Requisite: course 11. Survey of broad range of policy and theoretical issues that are raised when economic analysis is applied in urban setting. Topics in-

clude urbanization and urban growth, housing markets, location decisions of households and firms, transportation, urban labor markets, and local public sector. P/NP or letter grading.

**140. Computational Methods for Economists (4)** Lecture, three hours; discussion, one hour. Requisites: courses 101, 102, 103, Mathematics 31A, 31B, 32A, 33A, 33B. Enforced corequisite: course 140L. Introduction to variety of computational methods used in economics. Use of Python and numerical techniques to solve models in macroeconomics and finance, microeconomics, and econometrics. Students should be familiar with scientific programming language such as R or MATLAB but are not required to know Python. P/NP or letter grading.

**140L. Computational Methods for Economists Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 101, 102, 103, Mathematics 31A, 31B, 32A, 33A, 33B. Enforced corequisite: course 140. Problem-solving and project-based laboratory requiring students to apply computational methods from course 140 to solve models in macroeconomics and finance, microeconomics, and econometrics. Students should be familiar with scientific programming language such as R or MATLAB but are not required to know Python. P/NP or letter grading.

**141. Topics in Microeconomics: Mathematical Finance (5)** Lecture, three hours; computer laboratory, one hour. Requisites: course 11, Mathematics 32A, either Statistics 100A or Mathematics 170A. Economics of financial markets, competitive equilibrium with time and uncertainty, one period security market model, market completeness. P/NP or letter grading.

**142. Economics of Networks (4)** Lecture, three hours; discussion, one hour. Requisites: courses 41, 101. In today's networked societies, everyone belongs to many social and economic networks. People and firms rely on various kinds of networks to interact with each other. As a result, the structure of networks affects and shapes behavior in a fundamental way. Study offers a framework in which to understand how agents behave and interact on networks, using tools from economics and statistics. Study of how to classify networks, what is special about social/economics networks, and how information and misinformation can spread through networks, among others. Special emphasis on how the theory of social and economic networks informs and improves the traditional economic theory. P/NP or letter grading.

**143. Advanced Econometrics (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 103. Not open for credit to students with credit for former course 147A or 147B. Heteroskedasticity, limited dependent variable, panel data, time-series. P/NP or letter grading.

**144. Economic Forecasting (4)** Lecture, three hours. Preparation: familiarity with data analysis software (e.g., R, Excel, MATLAB, Stata) and/or programming experience. Enforced requisites: courses 101, 103, 103L, 104, 104L. Survey of theory and application of time-series methods to forecasting in economics, business, and government. Topics include modeling and forecasting trend, seasonality, and cycles. Discussion of stochastic trends, volatility measure, and evaluation of forecasting techniques. Hands-on approach to real-world data analysis methods widely used by economists and other professionals. P/NP or letter grading.

**145. Topics in Microeconomics: Mathematical Economics (4)** Lecture, three hours. Requisite: course 101. Possible topics include game theory; competitive equilibrium analysis; examination of market failure and role for market intervention. P/NP or letter grading.

**C146A. Seminar: Asset Pricing (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C296A. P/NP or letter grading.

**C146B. Seminar: Asset Pricing (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C296B. P/NP or letter grading.

**C146C. Seminar: Asset Pricing (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress pre-

sented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C296C. P/NP or letter grading.

**147. Computational Finance and Data Analysis for Financial Engineering (4)** Lecture, three hours. Requisites: courses 41, 101, 103. Enforced corequisite: course 147L. Introduction to econometric modeling in empirical/computational finance. Focus on study of econometric models and methods to understand financial market dynamics. Review of essential concepts in probability/statistics and time-series econometrics. Investigation of some popular financial econometric models and estimation methods. Review of selected topics in finance, and how to apply econometric methods to analyze and understand empirical properties of financial market data. Analytical problem sets and data exercises to enhance theoretical understandings and practical skills. P/NP or letter grading.

**147L. Computational Finance and Data Analysis for Financial Engineering Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 41, 101, 103. Enforced corequisite: course 147. Project-based analysis requiring students to apply econometric modeling techniques from course 147 to real-world financial data. P/NP or letter grading.

**148. Behavioral Economics (4)** Lecture, three hours. Enforced requisite: course 101. Behavioral economics is emerging subfield of economics that incorporates insights from psychology and other social sciences into economics to improve realism of economic models by incorporating realistic features such as aversion for losses, problems with self control, or concerns for others and thereby improve economic analyses. Review of some standard assumptions made in economics and examination of evidence on how human behavior systematically departs from these assumptions. Investigation of attempts to explore alternative models of human decision making and assessment to what extent these alternative models help improve economic analyses. P/NP or letter grading.

**149. Time-Series Econometrics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 41, 103, Mathematics 31A, 31B. Enforced corequisite: course 149L. Time-series econometrics studies dynamic behaviors of economic variables using tools from probability theory and statistics. It plays important role in data analysis in macroeconomics and finance. Introduction to methods of time-series analysis in econometrics. Topics include weak dependence, autoregressive-moving-average (ARMA) processes, linear processes, economic forecasting, long-run variance and heteroskedasticity and autocorrelation consistent (HAC) estimation, unit root theory, estimation and inference of time-varying volatility models. Provides useful preparation to students who plan to take empirically oriented macroeconomics and finance courses, and solid understanding of tools required to analyze and model economic time series data and financial asset prices/returns. Emphasis throughout on link between statistical models and implementation. P/NP or letter grading.

**149L. Time-Series Econometrics Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 41, 103, Mathematics 31A, 31B. Enforced corequisite: course 149. Problem-solving and project-based analysis requiring students to apply time-series analysis from course 149 to real-world time-series data. Applications involve weak dependence, autoregressive-moving-average (ARMA) processes, linear processes, economic forecasting, long-run variance and heteroskedasticity and autocorrelation consistent (HAC) estimation, unit root theory, estimation and inference of time-varying volatility models. Provides useful preparation to students who plan to take empirically oriented macroeconomics and finance courses, and solid understanding of tools required to analyze and model economic time series data and financial asset prices/returns. Emphasis throughout on link between statistical models and implementation. P/NP or letter grading.

**150. Labor Economics (4)** Lecture, three hours. Requisites: courses 11, 101, 103. Enforced corequisite: course 150L. Supply and demand for labor. Analysis of government, union, and other constraints on competitive system of wage determination. Wage level and structure. Wages and human capital theory. P/NP or letter grading.

**150L. Labor Economics Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 101, 103. Enforced corequisite: course 150. Case-based analysis requiring students to apply theoretical tools from course 150 to real-world problems involving labor economics. Topics include labor supply decisions, household production decisions, life-cycle aspects of labor supply, short-run and long-run labor demand, monopsony in labor market, quasi-fixed labor costs and labor demand, human capital, and other extended topics. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**151. Topics in Labor Economics (4)** Lecture, three hours. Requisites: courses 101, 150. Selected topics in labor theory; income distribution; business cycles and unemployment; investments in human capital and life cycles; migration; human fertility; marriage and divorce, etc. P/NP or letter grading.

**152. Women, Men, and Economy (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 101, 103. Corequisite: course 152L. Introduction to using tools of economics to understand gender-related issues. Review of economic models of household, fertility, and labor supply. Discussion of how they help interpret long-term trends in marriage and divorce, fertility, and women's labor-force participation. Review of economic models of wage determination, with focus on explanations of and policy remedies for earnings differentials between women and men. Examination of new research in economics on gender-related topics. P/NP or letter grading.

**152L. Women, Men, and Economy Laboratory (1)** Lecture, three hours; laboratory, one hour. Requisites: courses 11, 101, 103. Corequisite: course 152. Empirical-based analysis requiring students to apply theoretical and empirical tools from course 152 to real-world gender-related issues, and to further discuss latest research in field. P/NP or letter grading.

**C156A. Seminar: Labor Economics (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C266A. P/NP or letter grading.

**C156B. Seminar: Labor Economics (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C266B. P/NP or letter grading.

**C156C. Seminar: Labor Economics (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C266C. P/NP or letter grading.

**160. Money and Banking (4)** Lecture, three hours. Requisite: course 102. Principles of money and banking in U.S.; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy. P/NP or letter grading.

**161. Monetary Theory (4)** Lecture, three hours. Requisites: courses 101, 160. Nature of money and monetary exchange; level and term structure of interest rates; level and growth rate of money; transmission of monetary shocks; theory and practice of monetary policy. P/NP or letter grading.

**162. Monetary Policy (4)** Lecture, three hours. Requisite: course 102. The early part of the 21st century was characterized by several revolutionary changes to the conduct of monetary policy. To understand these changes, review of theoretical models and historical events. Development of a series of policy recommendations for the Federal Reserve given the current state of the U.S. economy, and presentation and written documentation of these ideas. P/NP or letter grading.

**164. Advanced Topics in Macroeconomics: Theory of Economic Growth (4)** Lecture, three hours. Requisite: course 102. Enforced corequisite: course 164L. Use of neoclassical growth model to address various issues, with emphasis on quantitative analysis. Development of economic theory and application to study of long-run growth, industrial revolution, and Great Depression. P/NP or letter grading.

**164L. Advanced Topics in Macroeconomics: Theory of Economic Growth Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 102. Enforced corequisite: course 164. Case-based analysis requiring students to apply theory from course 164 to real-world macroeconomic growth problems. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

**165. History of Capitalism in American Economy (4)** Lecture, three hours. Enforced requisite: course 102. Enforced corequisite: course 165L. How capitalism—what economists call market economy with well-defined and protected civil rights and property rights—has contributed to America's economic growth. Quantitative course, with analysis of how different features of capitalist economies impact economic growth, investment, consumption, and technical change, using computer simulations based on prominent historical examples. P/NP or letter grading.

**165L. History of Capitalism in American Economy Laboratory (1)** Lecture, one hour; laboratory, one hour. Enforced requisite: course 102. Enforced corequisite: course 165. Case-based analysis requiring students to apply theory and historical data from course 165 to simulate and analyze how variety of macroeconomic policies impact economic activity. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

**C166A. Seminar: Monetary Economics/Macroeconomics (4)** Seminar, three hours. Requisite: course 102. Limited to seniors. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C226A. P/NP or letter grading.

**C166B. Seminar: Monetary Economics/Macroeconomics (4)** Seminar, three hours. Requisite: course 102. Limited to seniors. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C226B. P/NP or letter grading.

**C166C. Seminar: Monetary Economics/Macroeconomics (4)** Seminar, three hours. Requisite: course 102. Limited to seniors. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C226C. P/NP or letter grading.

**167. Victims and Villains; Panics and Bubbles (4)** Lecture, three hours. Requisites: course 101, Management 1A, 1B. Focus on phenomena of panics, bubbles, and manias in financial history. In-depth analysis and discussion of underlying causes, private and public policy responses, similarities, and contemporary issues in today's financial landscape. Focus on study of financial meltdown of 2008 with comprehensive treatment of financial and banking panics, with discussion of underlying housing and stock market bubbles. Also covers five other financial crises: panic of 1907, Great Depression, Japanese real estate and stock market bubbles of 1980s, American banking crises of 1980s, and Asian Contagion of late 1990s. Highlights various components of financial crises with case and discussion on each component. Students read case studies relating to each, and more general related readings including speeches, papers, and articles. Letter grading.

**168. Introduction to Principles of Value Investing (4)** Lecture, three hours. Requisites: course 101, Management 1A, 1B. Introduction to fundamental principles of value investing. Discussion of fundamental themes relating to value investing, and demonstration of how these ideas compare favorably with other investment approaches. Topics include differences between investment and speculation, how to search for inefficiencies in marketplace, and importance of incorporating margin of safety in any analysis. Introduction of standard accounting and valuation tools, including liquidation value. Prepares students to analyze and interpret financial statements. Designed for students considering careers in security analysis, investment banking, consulting, and corporate finance. Letter grading.

**169. Applied Value Investing (4)** Lecture, three hours. Requisites: courses 101, 168, Management 1A, 1B. Enrollment by application only. Extends principles of introductory value investing class to more advanced and wider variety of applications. Makes use of multiple case studies to enhance comprehension with real-world examples and to highlight necessary valuation skills that students are expected to master. Also covers market dynamics that can create opportunities to find structurally mispriced securities such as rights offerings, spin-offs, restructurings, and liquidations. Designed for students considering careers in security analysis, investment banking, consulting, and corporate finance. Letter grading.

**170. Industrial Organization: Theory and Tactics (4)** Lecture, three hours. Requisite: course 101. Enforced corequisite: course 170L. Not open for credit to students with credit for former course 170 or 171. Monopoly, collusion and competition, strategic firm behavior, nonprice competition with and without entry, pricing practices, antitrust. Comparison of economic and legal treatments of competitive process. Monopoly competition, and collusion as economic theory, as antitrust doctrine, and as fact. Source of monopoly. Predatory behavior. Misleading practices in theory and policy. General problem of relationship between private rights of action and competitive entry. P/NP or letter grading.

**170L. Industrial Organization: Theory and Tactics Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 170. Case-based analysis requiring students to apply material from course 170 to real-world problems involving monopoly, collusion, strategic firm behavior, pricing practices, antitrust and other topics. Hands-on data collection and problem solving and presentation of student analyses both orally and in writing. P/NP or letter grading.

**171. Industrial Organization: Policy and Regulation (4)** Lecture, three hours. Requisite: course 101. Enforced corequisite: course 171L. Recommended prerequisite: course 103. Preparation: calculus. Designed to give foundation in topics within field of industrial organization relating to regulation of monopoly power within economy and different way that that manifests across firm conduct and industrial settings. Particular attention to topics in antitrust policy, with some exploration of intersection between economics and law. Topics include in-depth analysis of cartels and mergers, including abstract theory and specifics of analytical approaches deployed in enforcement by Department of Justice and Federal Trade Commission. P/NP or letter grading.

**171L. Industrial Organization: Policy and Regulation Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 101. Enforced corequisite: course 171. Recommended prerequisite: course 103. Preparation: calculus. Empirically-based analysis requiring students to provide empirical analysis to material covered in course 171, with emphasis on antitrust issues and policies. In particular, use of standard empirical toolkit to critically evaluate public policy and regulation with special emphasis on antitrust policy. P/NP or letter grading.

**173AX. Introduction to Social Entrepreneurship (4)** (Formerly numbered 173A.) Lecture, one hour; research group meeting, two hours. Course 173AX is requisite to 173BX. Full-scale immersion into world of social entrepreneurship. Introduction to basics of business planning for social enterprises. Students are assigned in teams to work with participating social enterprises in Los Angeles area to implement new revenue-generating business plan for social enterprises to which they are assigned. Teams receive support from MBA student volunteers as advisers on how to work effectively together and how to resolve issues that arise with staff of assigned social enterprise. Courses 173AX and 173BX must be taken in consecutive terms. In Progress grading (credit to be given only on completion of course 173BX).

**173BX. Introduction to Social Entrepreneurship (4)** (Formerly numbered 173B.) Lecture, one hour; research group meeting, two hours. Requisite: course 173AX. Full-scale immersion into world of social entrepreneurship. Introduction to basics of business planning for social enterprises. Students are assigned in teams to work with participating social enterprises in Los Angeles area to implement new revenue-generating business plan for social enterprises to which they are assigned. Teams receive support from MBA student volunteers as advisers on how to work effectively together and how to resolve issues that arise with staff of assigned social enterprise. Courses 173AX and 173BX must be taken in consecutive terms. P/NP or letter grading.

**174. Economics of Sports (4)** Lecture, three hours. Enforced requisites: courses 11, 41, 101. Recommended: courses 103/103L. Course in applied microeconomics that employs both theoretical and empirical tools to analyze wide range of topics related to sports industry. Topics include history of labor relations in professional sports, history and analysis of player salaries in professional sports, market for professional sports franchises and sports broadcast rights, league expansion and relocation decisions, understanding of role of economic impact studies (cost-benefit analysis) and public/private partnerships in facility financing, relationship between academics and athletics in collegiate sports, racial discrimination in sports, exploration of behavioral issues such as strategic effort, measuring return on investment from sport sponsorships, and calculation of economic damages in legal cases involving athletes. P/NP or letter grading.

**C176A. Seminar: Industrial Organization (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C276A. P/NP or letter grading.

**C176B. Seminar: Industrial Organization (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C276B. P/NP or letter grading.

**C176C. Seminar: Industrial Organization (4)** Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C276C. P/NP or letter grading.

**177. Field Projects in Investing (4)** Seminar, three hours. Enforced requisites: courses 167, 168, 169. Enrollment by application only. Experiential learning tool and seminar course where students complete significant research on investment-related topic. Participating students are paired with asset management firm and engage regularly to complete research project. Designed to expose students to real-world practice of asset valuation, including applications of tools and inputs (including economics, accounting, and quantitative techniques) in asset valuation. Letter grading.

**181. Development of Economic Institutions in Western Europe (4)** Lecture, three hours. Requisite: courses 11, 103. Corequisite: course 181L. Application of economic theory and quantitative reasoning to study economic history of Western Europe from 18th to 20th century. Topics include Malthusian theory, Industrial Revolution, demographic transition, formation and persistence of institutions and organizations, World Wars, and development of Europe during 1950s and 1960s. P/NP or letter grading.

**181L. Development of Economic Institutions in Western Europe Laboratory (1)** Lecture, three hours; laboratory, one hour. Requisite: courses 11, 103. Corequisite: course 181. Empirical analysis requiring application of material from corresponding lecture course to selected historical issues, such as Malthusian theory, Industrial Revolution, demographic transition, formation and persistence of institutions and organizations, World Wars, and development of Europe during 1950s and 1960s. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

**182A. U.S. Economic History: From Colonial Times to the Civil War (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 41 (or equivalent). Enforced corequisite: course 182AL. Examination of the development of the U.S. economy up to and including the Civil War. Focus on using economic models and numbers to understand what drove the evolution of the economy, why structural changes occurred, and why there was persistence. While the past persists for a long time in the form of people and institutions, there are periods of dramatic change brought on by technological change and by war. Study of the past, with its very different institutions, to inform the present. For example, there was no U.S. currency until the Civil War. Each bank printed its own notes and each state had different banking regulations. Investigation of how the system worked, whether it was effective in allocating capital, and how stability depended on banking regulations. P/NP or letter grading.

**182AL. U.S. Economic History: From Colonial Times to the Civil War Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 41 (or equivalent). Enforced corequisite: course 182A. Empirical analysis requiring application of material from course 182A to the development of the U.S. Economy up to and including the Civil War. Focus on application of economic models and empirical analysis to understand what drove the evolution of the economy, why structural changes occurred, and why there was persistence. P/NP or letter grading.

**182B. U.S. Economic History: From the Civil War to World War I (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 41 (or equivalent). Enforced corequisite: course 182BL. Examination of the development of the U.S. economy from the Civil War to World War I. Focus on using economic models and numbers to understand what drove the evolution of the economy, why structural changes occurred, and why there was persistence. While the past persists for a long time in the form of people and institutions, there are periods of dramatic change brought on by technological change and by war. Study of the past, with its very different institutions, to inform the present. For example, the time period from the Civil War to World War I witnessed the rise of large corporations and complaints of monopoly power. There was anti-trust law. Investigation of degree to which collusion and monopoly was a problem, and whether anti-trust law solved the problem or if the regulators were captured. Consideration also that there was no Federal Reserve until December 1914, and examination of the problems created by not having a Federal Reserve. P/NP or letter grading.

**182BL. U.S. Economic History: From the Civil War to World War I Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 41 (or equivalent). Enforced corequisite: course 182B. Empirical analysis requiring application of material from course 182B to the development of the U.S. Economy from the Civil War to World War I. Focus on application of economic models and empirical analysis to understand what drove the evolution of the economy, why structural changes occurred, and why there was persistence. P/NP or letter grading.

**182C. U.S. Economic History: From World War I to 1980s (4)** Lecture, three hours; discussion, one hour. Requisites: courses 11, 41 (or equivalent). Enforced corequisite: course 182CL. Examination of the development of the U.S. economy from the World War I to 1980s. Focus on using economic models and numbers to understand what drove the evolution of the economy, why structural changes occurred, and why there was persistence. While the past persists for a long time in the form of people and institutions, there are periods of dramatic change brought on by technological change and by war. Study of the past, with its very different institutions, to inform the present. For example, during the 2007-2008 financial crisis, economists looked to the Great Depression, a topic on which then Federal Reserve chairman Ben Bernanke published. Economists also look to the past to understand the role of government deficits in inflation and in economic growth. P/NP or letter grading.

**182CL. U.S. Economic History: From World War I to 1980s Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisites: courses 11, 41 (or equivalent). Enforced corequisite: course 182C. Empirical analysis requiring application of material from course 182C to the development of the U.S. Economy from World War I to 1980s. Focus on application of economic models and empirical analysis to understand what drove the evolution of the economy, why structural changes occurred, and why there was persistence. P/NP or letter grading.

**183. Development of Economic Institutions in U.S. (4)** Lecture, three hours. Requisites: courses 11, 103. Enforced corequisite: course 183L. Study of changing economic conditions in U.S. from Colonial times to early 20th century and effects of these changes on American society. P/NP or letter grading.

**183L. Development of Economic Institutions in U.S. Laboratory (1)** Lecture, one hour; laboratory, one hour. Requisite: course 11. Enforced corequisite: course 183. Empirical analysis requiring students to apply material from course 183 to selected historical issues such as migration, slavery, industrialization, capital formation, Great Depression, human capital formation, and California development and relate them to current real-world issues. Hands-on data collection and problem solving and presentation of student analyses in writing. P/NP or letter grading.

**185. Career Development (1)** Lecture, one hour. Enrollment priority to departmental majors. Designed to provide Business Economics majors with key knowledge and practical skills used in real world that compliment traditional academics to maximize interview, communication, and presentation skills and strengthen résumé building. Coverage of career paths in business profession in various aspects to broaden students' knowledge of career opportunities. Review of current business environment, financial markets, economy, unemployment, banking crises, market updates, and all related business topics. P/NP grading.

**C186A. Seminar: Economic History (4)** Seminar, three hours. Limited to seniors. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C246A. P/NP or letter grading.

**C186B. Seminar: Economic History (4)** Seminar, three hours. Limited to seniors. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C246B. P/NP or letter grading.

**C186C. Seminar: Economic History (4)** Seminar, three hours. Limited to seniors. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C246C. P/NP or letter grading.

**187. Upper-Division Research Seminar: Applications of Economic Theory (4)** Seminar, three hours. Requisites: courses 11, 101. Limited enrollment seminars in which students usually write research paper on topic selected in consultation with instructor. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188XP. Practicum in Social Entrepreneurship (4)** (Formerly numbered M188.) (Same as Community Engagement and Social Change M188XP) Seminar, three hours. Enrollment by consent of instructor. Offers students full-scale immersion into challenges of launching social enterprise. Students work in teams alongside staff of local nonprofit organizations in 10-week social enterprise accelerator program aimed at helping participating organizations secure financial and operational resources they need to implement social enterprise for which viable business plan has already been constructed. Students meet assigned organization, study its business plan, and work with instructors of course and staff of nonprofit organization to develop tailored plan of work for 10-week accelerator program. Students carry out work in conjunction with staff of organization under supervision of instructors and with assistance of experienced entrepreneur volunteer mentors. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Economics (4)** Seminar, three hours. Enforced requisites: courses 101, 102, 103. Research seminars on selected topics in economics. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**192. Undergraduate Practicum in Economics (3)** Seminar, two hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of course materials and development of innovative programs with guidance of faculty members. P/NP or letter grading.

**195A. Community or Corporate Internships in Economics I (2)** Tutorial, to be arranged. Requisites: courses 11, 101. Limited to junior/senior Economics, Business Economics, Economics/International Area Studies, and Mathematics/Economics majors. Internship to be supervised by Economics Department. Further supervision to be provided by business or entity for which student is doing internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. Only 8 units from courses 195A and 195B may be applied toward undergraduate degree. Individual contract with supervising faculty member required. P/NP grading.

**195B. Community or Corporate Internships in Economics II (4)** Tutorial, to be arranged. Requisites: courses 11, 101. Limited to junior/senior Economics, Business Economics, Economics/International Area Studies, and Mathematics/Economics majors. Internship to be supervised by Economics Department. Further supervision to be provided by business or entity for which student is doing internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. Only 8 units from courses 195A and 195B may be applied toward undergraduate degree. Individual contract with supervising faculty member required. P/NP grading.

**195C. Community and Corporate Internships in Economics (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Requisites: courses 11, 101. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated by Economics Department. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May not be applied toward major requirements. May be repeated for credit with consent of department. Individual contract with supervising faculty member required. P/NP or letter grading.



**198A. Honors Research in Economics I (4)** Tutorial, three hours. Requisites: courses 11, 101, 102. Limited to senior departmental honors program students. First term of two-term sequence in which students develop honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Economics II (4)** Tutorial, three hours. Requisite: course 198A. Limited to senior departmental honors program students. Second term of two-term sequence in which students complete honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

**199A. Directed Research in Economics (4)** Tutorial, three hours. Requisites: courses 11, 101, 102. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated twice but may be applied only once toward major requirements. Individual contract required. P/NP or letter grading.

**199B. Directed Research in Economics/International Area Studies (4)** Tutorial, three hours. Students prepare research papers under guidance of faculty mentor on economy of country or region of specialization. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Mathematical Methods in Economics (4)** Lecture, three hours. Should be taken prior to enrollment in course 201A. Examination of mathematical methods used in graduate-level courses in microeconomics, macroeconomics, and quantitative methods. Topics include real analysis, linear algebra and matrices, calculus of many variables, static optimization, convex analysis, and dynamics and dynamic optimization. S/U grading.

**200B. Mathematical Methods in Economics II (4)** Lecture, three hours; laboratory, two hours. Should be taken prior to or concurrent with course 201B. Linear algebra and its application to linear difference equations. Basic real analysis, normed vector space/Banach space, Hahn/Banach theorem, Schauder fixed point theorem, and theory of correspondences. S/U grading.

**201A. Microeconomics: Theory of Firm and Consumer (4)** Lecture, three hours. Two input/two output model. Walrasian equilibrium and Pareto efficiency. Choice over time—consumer savings and firm investment decisions. Choice under uncertainty—state claims model, asset pricing. S/U or letter grading.

**201B. Microeconomics: Basic Concepts and Techniques of Noncooperative Game Theory and Information Economics (4)** Lecture, three hours. Nash equilibrium and subgame perfection. Games with incomplete information. Models of strategic market behavior. Screening and signaling. Bargaining models. Theory of firm. S/U or letter grading.

**201C. Microeconomics: Game Theory with Asymmetric Information and Applications (4)** Lecture, three hours. Perfect Bayesian equilibrium and refinements, mechanism design. Applied topics such as adverse selection, signaling, moral hazard, bidding, price discrimination, and public good provision. S/U or letter grading.

**202A. Macroeconomics: Dynamics and Growth Theory (4)** Lecture, three hours. Essential techniques and concepts from dynamical mathematics and neoclassical growth theory. Linear and nonlinear dynamical systems. Dynamic programming and control theory. Stochastic dynamics. Determinacy of equilibrium. Descriptive, optimal, and overlapping generations models of accumulation. Stochastic growth theory. Increasing returns and applications to economic development. S/U or letter grading.

**202B. Macroeconomics: Business Cycles (4)** Lecture, three hours. Survey of representative agent and complete market models of short-run fluctuations. Facts about fluctuations and long-term growth. Real business cycle theory. Calibrating and simulating dynamic models. Asset prices, money, and inflation. Taxation of factor incomes. Cyclical aspects of employment. S/U or letter grading.

**202C. Macroeconomics: Topics in Macroeconomics (4)** Lecture, three hours. Heterogeneous-agent models of endogenous fluctuations and growth. General equilibrium techniques in macroeconomics. Overlapping fluctuations model with national debt. Fiscal policy. Externalities, indeterminacy, and growth. Expectations and business cycles. Money and monetary policy. Historical overview of mainstream macroeconomics. Wicksell and Keynes. Monetarist controversy. New classical and new Keynesian macroeconomics. S/U or letter grading.

**203A. Introduction to Econometrics I (4)** Lecture, three hours; discussion, one hour. Probability and statistical tools for econometric models. Topics include random variables, distribution and density functions, transformations, identification, sampling, estimators, asymptotic properties. S/U or letter grading.

**203B. Introduction to Econometrics II (4)** Lecture, three hours; discussion, one hour. Estimation and testing. Basic linear regression model, tests of hypotheses, generalized least squares, heteroskedasticity, multicollinearity, error-in-variables, and qualitative dependent variables. S/U or letter grading.

**203C. Introduction to Econometrics III (4)** Lecture, three hours; discussion, one hour. Econometrics methods for time-series econometrics, including theory and applications. Topics include detrending techniques, unit root theory, cointegrated system approaches, autocorrelation robust inference, Wold and Beveridge and Nelson (BN) decompositions, model selection, non-linear nonstationary models, spatial density asymptotics and semi-nonparametric time-series models. S/U or letter grading.

**204A. Applications of Economic Theory: California Population Research Topical Seminar Series (4)** (Same as Sociology M225A.) Seminar, three hours. Limited to California Center for Population Research (CCPR) affiliates. Examination of issues such as demography, health, aging, labor, and broad array of topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. S/U grading.

**204B. Applications of Economic Theory: California Population Research Topical Seminar Series (4)** Seminar, three hours. Examination of issues such as demography, health, aging, labor, and broad array of topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. May be taken independently for credit. S/U grading.

**204C. Applications of Economic Theory: California Population Research Topical Seminar Series (4)** Seminar, three hours. Examination of issues such as demography, health, aging, labor, and broad array of topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. May be taken independently for credit. S/U grading.

**204D. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204E. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204F. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204G. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204H. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204I. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204J. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204K. Applications of Economic Theory (4)** Lecture, three hours. S/U or letter grading.

**204L. Seminar: Pharmaceutical Economics and Policy (1)** (Same as Health Policy M204A.) Seminar, three hours every other week. Requisite: Health Policy M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress grading (credit to be given only on completion of courses M204M and M204N).

**204M. Seminar: Pharmaceutical Economics and Policy (1)** (Same as Health Policy M204B.) Seminar, three hours every other week. Requisite: Health Policy M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress grading (credit to be given only on completion of course M204N).

**204N. Seminar: Pharmaceutical Economics and Policy (2)** (Same as Health Policy M204C.) Seminar, three hours every other week. Requisite: Health Policy M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. Letter grading.

**204R. Applications of Economic Theory (4)** Lecture, three hours. Preparation: completion of first-year microeconomics and graduate econometrics courses. In past decade economists have learned remarkable amount about how society works. Increased understanding has come about through application of distinctively economic methods of research—explicit mathematical models and eclectic statistical techniques—to topics such as healthcare, crime, education, and immigration. Taken together this work has led to increased understanding of inequality, how to measure it, how inequality has increased in U.S., how America differs from other rich countries and, most important, what

causes inequality. Study of this work, with focus on two important influences on inequality—education and health—which are two areas in which knowledge is accumulating most rapidly. S/U or letter grading.

**205. Economic Modeling (4)** Lecture, three hours. Development of modeling skills by considering sequence of economic issues (e.g., peak load pricing, regulation, monopoly, capital asset pricing, Pareto efficiency). Emphasis on multivariate constrained optimization. S/U or letter grading.

**206. Law and Economics Workshop. (2, 3)** Seminar, two hours. Requisite: course 201A or Management 405. Knowledge of empirical methods and basic calculus required. Interdisciplinary speakers series bringing together outside speakers with scholars and students from UCLA Law School and academic departments. Topics include contracts, torts, intellectual property, and business law. Students write graded reaction papers. May be repeated for credit. Concurrently scheduled with Law 648 and Management 294. S/U or letter grading.

**207. History of Economic Thought (4)** Lecture, three hours. Topics from classical economics, including work of Smith, Ricardo, and Mill, and developments from 1870s, including contributions of major figures of marginalistic revolution, socialist controversy, and history of welfare economics. S/U or letter grading.

**208. Introduction to Demographic Methods (4)** (Same as Biostatistics M208, Community Health Sciences M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

**209A. PhD Research Seminar (4)** Seminar, three hours. Designed to help PhD students transition from standard learning (attending lecture, taking examinations) into creating independent research. Students are supported in developing their dissertation and professional skills in all aspects of process of creating their own research, including writing and presentation. Covered topics include finding research ideas, writing introductions, building narratives, writing models, presenting empirical analysis, writing referee reports, responding to referees, presentation, elevator pitch, etc. For each topic, students study canonical examples and work on their own papers. Faculty provide feedback and build supportive environment in which students can learn and experiment. S/U grading.

**209B. PhD Research Seminar (4)** Seminar, three hours. Designed to help PhD students transition from standard learning (attending lecture, taking examinations) into creating independent research. Students are supported in developing their dissertation and professional skills in all aspects of process of creating their own research, including writing and presentation. Covered topics include finding research ideas, writing introductions, building narratives, writing models, presenting empirical analysis, writing referee reports, responding to referees, presentation, elevator pitch, etc. For each topic, students study canonical examples and work on their own papers. Faculty provide feedback and build supportive environment in which students can learn and experiment. S/U grading.

**209C. PhD Research Seminar (4)** Seminar, three hours. Designed to help PhD students transition from standard learning (attending lecture, taking examinations) into creating independent research. Students are supported in developing their dissertation and professional skills in all aspects of process of creating their own research, including writing and presentation. Covered topics include finding research ideas, writing introductions, building narratives, writing models, presenting empirical analysis, writing referee reports, responding to referees, presentation, elevator pitch, etc. For each topic, students study canonical examples and work on their own papers. Faculty provide feedback and build supportive environment in which students can learn and experiment. S/U grading.

**211A. Contract Theory (4)** Lecture, three hours. Preparation: introductory probability. Enforced requisite: course 201C. Study of trading relationships between small number of agents. Coverage of many tools and techniques used in models of moral hazard, adverse selection, and incomplete contracting, starting with static models of moral hazard and mechanism design and development of their dynamic counterparts. Consideration of environments where agents cannot use formal contracts, studying relational contracts and trading relationships with no contracts. Analysis of wide variety of applications from industrial organization, corporate finance, personnel economics, and public economics. S/U or letter grading.

**211B. Economics of Uncertainty, Information, and Games (4)** Lecture, three hours. Preparation: introductory probability. Requisite: course 201C. Theory of individual decision making under uncertainty, applied to topics such as asset pricing models, adverse selection, moral hazard, bargaining, signaling, auctions, and search. S/U or letter grading.

**211C. Game Theory and Economic Applications (4)** Lecture, three hours. Preparation: introductory probability. Enforced requisite: course 201C. Intended for students who are interested in doing research in microeconomic theory and for students who want to acquire good theory background to do applied work. Coverage of combination of standard results in field and topics of current research, including notions of equilibrium in static and dynamic games, reasoning in games, repeated games, games of incomplete information, and experiments. S/U or letter grading.

**212A. Topics in Advanced Theory: Search Theory (4)** Lecture, three hours. Preparation: calculus, introductory probability. Price searching, queueing, Brownian motion, martingales, and applications to theory of firm. May be repeated for credit. S/U or letter grading.

**212B. Topics in Advanced Theory: Applied Game Theory (4)** Lecture, three hours. Preparation: calculus, introductory probability. Use of theory of Bayesian games to study bargaining, monetary theory, and oligopoly. Use of theory of mechanisms to study auction design and imperfectly competitive markets. May be repeated for credit. S/U or letter grading.

**213A. General Equilibrium and Game Theory (4)** Lecture, three hours. Requisite: course 201C. Selected advanced theoretical topics of current interest and introduction to modern mathematical economics, including general equilibrium theory and game theory. S/U or letter grading.

**213B. General Equilibrium and Game Theory (4)** Lecture, three hours. Requisite: course 201C. Selected advanced theoretical topics of current interest and introduction to modern mathematical economics, including general equilibrium theory and game theory. S/U or letter grading.

**214A. Topics in Mathematical Economics: General Equilibrium Theory (4)** Lecture, three hours. Requisite: course 201C. Core convergence theorem, cooperative and noncooperative approach to competitive equilibrium theory, perfectly competitive equilibria, no-surplus condition, and applications to mechanism theory and incomplete market models. May be repeated for credit. S/U or letter grading.

**215. Topics in Applied Game Theory (4)** (Same as Political Science M208B.) Lecture, three hours. Preparation: calculus or introductory probability. Designed for graduate economics and political science students. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

**218A. Proseminar: Economic Theory (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in game theory, information and uncertainty, and general equilibrium theory. Presentation of recent papers published and unpublished in economic theory as well as research of instructor and students. In-class presentation expected. S/U grading.

**218B. Proseminar: Economic Theory (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in game theory, information and uncertainty, and general equilibrium theory. Presentation of recent papers published and unpublished in economic theory as well as research of instructor and students. In-class presentation expected. S/U grading.

**218C. Proseminar: Economic Theory (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in game theory, information and uncertainty, and general equilibrium theory. Presentation of recent papers published and unpublished in economic theory as well as research of instructor and students. In-class presentation expected. S/U grading.

**219A. Workshop: Economic Theory and Mathematical Economics (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**219B. Workshop: Economic Theory and Mathematical Economics (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**219C. Workshop: Economic Theory and Mathematical Economics (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**221A. Monetary Economics I (4)** Lecture, three hours. Requisites: courses 202A, 202B, 202C. Dynamic methods in business cycles and economic growth. Multiperiod life-cycle models. Sustainable public deficits. Money and

inflationary finance. Human capital. Endogenous fluctuations and regime switching. Econometrics of multiple equilibrium models. Political economy of government deficits and inflation. S/U or letter grading.

**221B. Monetary Economics II (4)** Lecture, three hours. Emphasis on theoretical, historical, and policy aspects of monetary economics. Financial intermediation, bank panics, asset price volatility, game theoretic models of policy, inflation, implication of monopolistic competition, search and coordination failures, central bank operations, and evolution of monetary institutions. S/U or letter grading.

**221C. Monetary Economics III (4)** Lecture, three hours. Requisites: courses 202A, 202B, 202C. Emphasis on quantitative dynamic models useful in study of equilibrium business cycles and public finance. Recursive competitive equilibria in representative agent overlapping-generation models, including models with money, taxes, liquidity constraints, and other distortions. S/U or letter grading.

**221D. Monetary Economics IV (4)** Lecture, three hours. Requisites: courses 202A, 202B, 202C. Emphasis on applied macroeconomics, with topic change each year. Students select one particular data set to study. Each week class studies article from recent work in applied macroeconomics or applied econometrics that teaches one technique or suggests one theoretical restriction on data. Subgroups of students report back to class using technique on their selected data set. S/U or letter grading.

**222B. Topics in Monetary Economics (4)** Lecture, three hours. Current research in monetary economics. Content varies. May be repeated for credit. S/U or letter grading.

**222C. Topics in Monetary Economics (4)** Lecture, three hours. Current research in monetary economics. Content varies. May be repeated for credit. S/U or letter grading.

**222D. Topics in Monetary Economics (4)** Lecture, three hours. Current research in monetary economics. Content varies. May be repeated for credit. S/U or letter grading.

**C226A. Seminar: Monetary Economics/Macroeconomics (4)** Seminar, three hours. Designed for predoctoral and dissertation writers. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C166A. S/U or letter grading.

**C226B. Seminar: Monetary Economics/Macroeconomics (4)** Seminar, three hours. Designed for predoctoral and dissertation writers. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C166B. S/U grading.

**C226C. Seminar: Monetary Economics/Macroeconomics (4)** Seminar, three hours. Designed for predoctoral and dissertation writers. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C166C. S/U or letter grading.

**228A. Proseminar: Monetary Economics (4)** Seminar, three hours. Workshops for predoctoral and dissertation writers. Literature surveys or research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper or presentation required. S/U grading.

**228B. Proseminar: Monetary Economics (4)** Seminar, three hours. Workshops for predoctoral and dissertation writers. Literature surveys or research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper or presentation required. S/U grading.

**228C. Proseminar: Monetary Economics (4)** Seminar, three hours. Workshops for predoctoral and dissertation writers. Literature surveys or research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper or presentation required. S/U grading.

**229A. Workshop: Monetary Economics (4)** Lecture, three hours. Workshops for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**229B. Workshop: Monetary Economics (4)** Lecture, three hours. Workshops for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**229C. Workshop: Monetary Economics (4)** Lecture, three hours. Workshops for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**231A. Advanced Econometrics I (4)** Lecture, three hours. Econometric methods for microeconomic models. Topics include identification, non-parametric estimation, limited dependent variable models, duration, panel data, tests of hypotheses. S/U or letter grading.

**231B. Advanced Econometrics II (4)** Lecture, three hours. Econometric methods for empirical research in economics. Topics include simultaneous equations, instrumental variables, panel data, treatment effects, and point and partial identification, with applications in static and dynamic games, social interactions, matching, and network formation. S/U or letter grading.

**231C. Advanced Econometrics III (4)** Lecture, three hours. Advanced topics in econometrics that may vary year to year. Current topics include empirical process methods with applications to quantile regression and general M-estimation, estimation and inference methods in high-dimensional models, including LASSO and Dantzig Selector techniques, and bootstrap. May be repeated for credit. S/U or letter grading.

**232A. Topics in Econometrics: Bayesian Econometrics (4)** (Same as Political Science M208E.) Lecture, three hours. Requisites: courses 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. May be repeated for credit. S/U or letter grading.

**232B. Topics in Econometrics: Time Series (4)** Lecture, three hours. Requisites: courses 231A, 231B. Stationary stochastic processes, Box/Jenkins methods, spectral analysis, forecasting, rational expectation models, analysis of macroeconomic data. May be repeated for credit. S/U or letter grading.

**232D. Topics in Econometrics (4)** Lecture, three hours. Requisites: courses 231A, 231B. Current research in econometrics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

**232E. Topics in Econometrics (4)** Lecture, three hours. Requisites: courses 231A, 231B. Current research in econometrics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

**232F. Topics in Econometrics (4)** Lecture, three hours. Requisites: courses 231A, 231B. Current research in econometrics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

**232M. Topics in Econometrics (4)** Lecture, three hours. Requisites: courses 231A, 231B. Current research in econometrics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

**238A. Proseminar: Econometrics (4)** Seminar, three hours. Quarterly seminar for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Research paper or presentation required. S/U grading.

**238B. Proseminar: Econometrics (4)** Seminar, three hours. Quarterly seminar for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Research paper or presentation required. S/U grading.

**238C. Proseminar: Econometrics (4)** Seminar, three hours. Quarterly seminar for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Research paper or presentation required. S/U grading.

**239A. Workshop: Econometrics (4)** Lecture, three hours. Workshops for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**239B. Workshop: Econometrics (4)** Lecture, three hours. Workshops for predoctoral and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**239C. Workshop: Econometrics (4)** Lecture, three hours. Workshops for pre-dissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**241. Economic History of Western Europe (4)** Lecture, three hours. Designed for graduate students. Seminar on European economic history, with emphasis on evolution of institutions and growth. Serfdom, medieval agriculture and agricultural revolution, demographics, industrial revolution, imperial expansion, and decline of Britain. S/U or letter grading.

**242. Economic History of U.S. (4)** Lecture, three hours. Seminar on American economic history. Onset of industrialization, relative economic backwardness of South, slavery, technological change, rise in industrial concentration, women in labor force, development of financial markets. S/U or letter grading.

**243A. Topics in Economic History (4)** Lecture, three hours. Current research in economic history. Content varies. May be repeated for credit. S/U or letter grading.

**244. U.S. Labor Markets and Public Programs since 1940 (4)** Lecture, three hours. Designed for PhD students. Introduction to current research at intersection of labor economics, public economics, and U.S. economic history, focusing on period after 1940. Topics include economic and wage inequality; intergenerational mobility; increasing (and stalling) educational attainment; changes in health and health care; Great Migration; gender gap in pay and rise of married women's market work; baby boom and bust; racial inequality from slavery to Civil Rights era; and war on poverty. S/U or letter grading.

**C246A. Seminar: Economic History (4)** Seminar, three hours. Designed for pre-dissertation and dissertation writers. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C186A. S/U grading.

**C246B. Seminar: Economic History (4)** Seminar, three hours. Designed for pre-dissertation and dissertation writers. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C186B. S/U grading.

**C246C. Seminar: Economic History (4)** Seminar, three hours. Designed for pre-dissertation and dissertation writers. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C186C. S/U grading.

**248A. Proseminar: Economic History (4)** Seminar, three hours. Quarterly seminar for pre-dissertation and dissertation writers. Discussion of advanced topics and recent developments in economic history. Presentation of work-in-progress. Research paper required. S/U grading.

**248B. Proseminar: Economic History (4)** Seminar, three hours. Quarterly seminar for pre-dissertation and dissertation writers. Discussion of advanced topics and recent developments in economic history. Presentation of work-in-progress. Research paper required. S/U grading.

**248C. Proseminar: Economic History (4)** Seminar, three hours. Quarterly seminar for pre-dissertation and dissertation writers. Discussion of advanced topics and recent developments in economic history. Presentation of work-in-progress. Research paper required. S/U grading.

**249A. Von Gremp Workshop: History of Entrepreneurship in U.S. Economy (4)** Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by visiting experts, UCLA faculty members, graduate students. S/U grading.

**249B. Von Gremp Workshop: History of Entrepreneurship in U.S. Economy (4)** Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by visiting experts, UCLA faculty members, graduate students. S/U grading.

**249C. Von Gremp Workshop: History of Entrepreneurship in U.S. Economy (4)** Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by visiting experts, UCLA faculty members, graduate students. S/U grading.

**251A. Theory and Policy of Taxation (4)** Lecture, three hours. Examination of influence of taxation on economic efficiency and incidence of taxation in first part of course. Topics include tax equivalences, Ramsey rules, and alternative forms of taxation. Special tax provisions, tax incentives, and progressivity in taxation in second part of course. S/U or letter grading.

**251B. Cost-Benefit Analysis of Public Projects and Programs (4)** Lecture, three hours. Requisite: course 251A. Presentation of those aspects of applied capital theory that are relevant in decisions concerning investment projects in first part of course. Differences between social and private benefits and costs (shadow prices) for foreign exchange, capital, and labor, with applications to public investment decisions, in second part of course. S/U or letter grading.

**252. Economics of Federalism (4)** Lecture, three hours. Theories of perfect games and social organization. Role of government, collective goods, collective defense, local public goods, spillovers, and intergovernmental relations. S/U or letter grading.

**253A. Topics in Public Finance (4)** Lecture, three hours. Current research in public finance. Content varies. Topics include Social Security taxes and programs, unemployment insurance, public provision of medical care, theory of public goods, and theory of public choice. May be repeated for credit. S/U or letter grading.

**253B. Topics in Public Finance (4)** Lecture, three hours. Current research in public finance. Content varies. Topics include Social Security taxes and programs, unemployment insurance, public provision of medical care, theory of public goods, and theory of public choice. May be repeated for credit. S/U or letter grading.

**254A. Workshop: Public Economics (4)** Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by graduate students, UCLA faculty members, visiting experts. S/U grading.

**254B. Workshop: Public Economics (4)** Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by graduate students, UCLA faculty members, visiting experts. S/U grading.

**254C. Workshop: Public Economics (4)** Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by graduate students, UCLA faculty members, visiting experts. S/U grading.

**261A. Labor Economics I (4)** Lecture, three hours. Wage determination in competitive labor markets. Extension of wage determination to schooling and occupational choice, life-cycle earnings profiles, discrimination, minimum wage legislation, and unionism. Emphasis on empirical literature. S/U or letter grading.

**261B. Labor Economics II (4)** Lecture, three hours. Requisite: course 261A. Models of life-cycle learning and work behavior, with particular emphasis on recent literature examining labor force behavior and experience of women. S/U or letter grading.

**262A. Topics in Labor Economics (4)** Lecture, three hours. Current research in labor economics. Content varies. May be repeated for credit. S/U or letter grading.

**262D. Development Economics (4)** Lecture, three hours. Preparation: completion of first-year graduate microeconomics and econometrics courses. Focus on issues in development economics with emphasis on issues in micro-development. Covers both theoretical and empirical contributions, with particular emphasis on most recent research advances in field. Covers topics from development perspective related to gender and family economics, history, institutions, culture, education, health, agriculture, and risk-sharing. Emphasis on developing skills to implement commonly-used research methods. S/U or letter grading.

**262F. Topics in Labor Economics: Public Sector Microeconomics (4)** Lecture, three hours. Preparation: completion of first-year graduate microeconomics and econometrics courses. Coverage of topics related to tax incidence, deadweight loss, public expenditure, income taxation and transfer programs, with emphasis on impacts of such programs on labor supply and savings, social security, unemployment insurance, and other insurance programs. S/U or letter grading.

**262P. Topics in Labor Economics (4)** Lecture, three hours. Current research in labor economics. Content varies. May be repeated for credit. S/U or letter grading.

**263. Topics in Urban Economics (4)** Lecture, three hours. Current research in urban and regional economics. Content varies. Serves as forum for presentation of papers on urban economics by students, UCLA faculty members, and visitors. May be repeated for credit. S/U or letter grading.

**264A. General Equilibrium and Finance (4)** Lecture, three hours. Designed for graduate students. Introduction to mathematical finance from general equilibrium viewpoint. CAPM and static equilibrium models. Intertemporal models in discrete and continuous time. Spanning, option prices, and derivatives. Martingales, random walks, and market efficiency. S/U or letter grading.

**264B. Fundamentals and Bubbles in Asset Prices (4)** Lecture, three hours. Requisite: course 264A. Designed for graduate students. Applications of dynamic general equilibrium to asset pricing in economies with exchange and production. Basic empirical puzzles in U.S. and international asset prices, 1880 to 2000: excess volatility, equity premium and risk-free rate puzzle, predictability. Models of habit formation, asset price bubbles, and limited arbitrage asset pricing theories. Market imperfections and bounded rationality. S/U or letter grading.

**264C. Asset Prices, Forecasting, and Learning (4)** Lecture, three hours. Requisite: course 264A. Designed for graduate students. Introduction to forecasting methods and applications to asset pricing. Signal-extraction under different uncertainty specifications. Kalman filtering and forecasting. Robust filtering and forecasting. Models of behavioral finance. Stylized facts on forecasts and asset pricing anomalies: short-term momentum and long-term reversals of returns. Option pricing anomalies. S/U or letter grading.

**264D. Econometrics of Asset Prices (4)** Lecture, three hours. Requisite: course 264A. Designed for graduate students. Applications of time-series methods to analysis of asset prices: general method of moments, vector autoregressions, and maximum likelihood estimation. Restrictions imposed by no-arbitrage on time series of returns. Empirical implications of macroeconomic models for asset prices. Response of asset prices to shocks. Incomplete markets. S/U or letter grading.

**C266A. Seminar: Labor Economics (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C156A. S/U or letter grading.

**C266B. Seminar: Labor Economics (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C156B. S/U or letter grading.

**C266C. Seminar: Labor Economics (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C156C. S/U or letter grading.

**268A. Proseminar: Labor and Population (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers working on empirical issues in areas of labor and population, broadly defined. Presentation of work-in-progress or background material for proposed thesis topics, to be discussed and criticized by faculty and fellow students. Presentation or research paper required. S/U grading.

**268B. Proseminar: Labor and Population (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers working on empirical issues in areas of labor and population, broadly defined. Presentation of work-in-progress or background material for proposed thesis topics, to be discussed and criticized by faculty and fellow students. Presentation or research paper required. S/U grading.

**268C. Proseminar: Labor and Population (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers working on empirical issues in areas of labor and population, broadly defined. Presentation of work-in-progress or background material for proposed thesis topics, to be discussed and criticized by faculty and fellow students. Presentation or research paper required. S/U grading.

**269A. Workshop: Labor Economics (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**269B. Workshop: Labor Economics (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**269C. Workshop: Labor Economics (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**271A. Industrial Organization, Price Policies, and Regulation I (4)** Lecture, three hours. Major economic aspects of property rights system. Firm and market compared from perspective of alternative arrangements for allocating resources. Traditional problems of competition, monopoly, and industrial concentration. Brief analysis of those portions of antitrust policy bearing on industrial structure. S/U or letter grading.

**271B. Industrial Organization, Price Policies, and Regulation II (4)** Lecture, three hours. Requisite: course 271A. Study of firm organization and pricing under conditions of less than perfect competition; information costs and advertising; economic and legal analysis of marketing practices such as discrimination, tie-in selling, resale price maintenance, exclusive dealing, and territorial arrangements. S/U or letter grading.

**271C. Mathematical Theory in Industrial Organization (4)** Lecture, three hours. Requisites: courses 201A, 201B, 201C. Formal modeling of theory of industrial organization: principal-agent problem, entry deterrence, endogenous price discrimination, monopolistic competition, new approaches to rationality. S/U or letter grading.

**272A. Topics in Industrial Organization (4)** Lecture, three hours. Current research in industrial organization. Content varies. May be repeated for credit. S/U or letter grading.

**273A. Public Utility Regulation (4)** Lecture, three hours. Theory, practice, and consequences of regulation in electric power, gas, water, telecommunications, broadcasting, and other regulated experiences of unregulated monopoly and public enterprises by way of contrast. S/U or letter grading.

**C276A. Seminar: Industrial Organization (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C176A. S/U or letter grading.

**C276B. Seminar: Industrial Organization (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C176B. S/U or letter grading.

**C276C. Seminar: Industrial Organization (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C176C. S/U or letter grading.

**278A. Proseminar: Industrial Organization and Regulation (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers to discuss advanced topics and recent developments in industrial organization and regulation. Presentation of work-in-progress for feedback from faculty and fellow students. Presentation or research paper required. S/U grading.

**278B. Proseminar: Industrial Organization and Regulation (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers to discuss advanced topics and recent developments in industrial organization and regulation. Presentation of work-in-progress for feedback from faculty and fellow students. Presentation or research paper required. S/U grading.

**278C. Proseminar: Industrial Organization and Regulation (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers to discuss advanced topics and recent developments in industrial organization and regulation. Presentation of work-in-progress for feedback from faculty and fellow students. Presentation or research paper required. S/U grading.

**279A. Workshop: Business Organization (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**279B. Workshop: Business Organization (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**279C. Workshop: Business Organization (4)** Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

**281A. International Trade Theory (4)** Lecture, three hours. Theoretical and empirical analysis of microeconomic relationships among countries. Determinants of commodity and factor flows, prices, and factor rewards. Effects of trade barriers. S/U or letter grading.

**281B. International Finance (4)** Lecture, three hours. Theory and evidence on balance of payments, exchange rate determination, international transmission of inflation and business cycles, macroeconomic policy in open economies, alternative monetary systems. S/U or letter grading.

**281C. International Economics (4)** Lecture, three hours. Theoretical and empirical analysis of interrelation between flows of capital, people, and goods. Applications to current policy. S/U or letter grading.

**282A. Topics in International Economics (4)** Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

**282B. Topics in International Economics (4)** Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

**282C. Topics in International Economics (4)** Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

**282D. Topics in International Economics (4)** Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

**284. Soviet Economic Theory and Organization (4)** Lecture, three hours. Overall strategy of planning used by USSR planners and specific planning methods, interpreted broadly to cover not only instructions and objectives but also institutional arrangements. Intended and unintended outcomes of methods. S/U or letter grading.

**C285A. Seminar: International Economics (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C126A. S/U grading.

**C285B. Seminar: International Economics (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C126B. S/U grading.

**C285C. Seminar: International Economics (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C126C. S/U grading.

**286A. Economic Development (4)** Lecture, three hours. Requisites: courses 201C, 202C. Study of theoretical and empirical problems related to developing countries. Emphasis on relation between international trade and economic development, dynamic aspects of commercial policies, inflation, stabilization, structural adjustment, growth and migration. S/U or letter grading.

**286B. Cost-Benefit Analysis of Development Projects (4)** Lecture, three hours. Requisite: course 286A. Methodology for evaluating investment projects, with special attention to types of issues that arise in developing countries. Discussion of social versus private evaluation criteria; applications to highway, electricity, and irrigation projects. S/U or letter grading.

**287A. Topics in Development Economics: Economic Problems of Latin America (4)** Lecture, three hours. Economic history of Latin America. Great depression, import substitution and industrialization, inflation and growth, free market experiments, and economic integration. May be repeated for credit. S/U or letter grading.

**287B. Topics in Development Economics: Economic Development in East Asia (4)** Lecture, three hours. Recent economic history of East Asia, focusing on postwar development of Japan, Korea, and China. Emphasis on role of international investment and trade, especially with U.S., in area's economic development. May be repeated for credit. S/U or letter grading.

**287C. Topics in Development Economics: Economic Development (4)** Lecture, three hours. Designed for graduate students. Topics in monetary and exchange rate policy in developing countries. Students expected to develop analytical tools and underlying policy issues. May be repeated for credit. S/U or letter grading.

**287D. Topics in Development Economics (4)** Lecture, three hours. Current research in development economics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

**288A. Proseminar: International and Development Economics (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on current issues in international trade and finance and development economics. Presentation of work-in-progress for feedback from faculty and other graduate students. Presentation or research paper required. S/U grading.

**288B. Proseminar: International and Development Economics (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on current issues in international trade and finance and development economics. Presentation of work-in-progress for feedback from faculty and other graduate students. Presentation or research paper required. S/U grading.

**288C. Proseminar: International and Development Economics (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on current issues in international trade and finance and development economics. Presentation of work-in-progress for feedback from faculty and other graduate students. Presentation or research paper required. S/U grading.

**291A. Asset Pricing (4)** Lecture, three hours. Introduction to models of firm dynamics, their use in modeling valuation of firms, and embedding of these models in general equilibrium for purposes of understanding market valuation of corporate sector as whole. Introduction also to continuous-time search-and-matching models and their applications to financial economics. S/U or letter grading.

**291B. Asset Pricing (4)** Lecture, three hours. Recent theoretical and empirical research on monetary policy. Includes issues such as how monetary policy is implemented in practice. What are effects of different monetary policy tools, what restrictions on government does monetary policy impose, transmission mechanisms of monetary policy, welfare costs of inflation, how does monetary policy interact with credit markets and how does it affect asset prices. S/U or letter grading.

**C296A. Seminar: Asset Pricing (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C146A. S/U or letter grading.

**C296B. Seminar: Asset Pricing (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C146B. S/U grading.

**C296C. Seminar: Asset Pricing (4)** Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C146C. S/U grading.

sented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with course C146C. S/U or letter grading.

**298A. Proseminar: Asset Pricing (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on empirical issues in area of asset pricing, broadly defined. Presentation of work-in-progress or background material for proposed dissertation topics that are discussed and criticized by faculty members and fellow students. Presentation or research paper required. S/U grading.

**298B. Proseminar: Asset Pricing (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on empirical issues in area of asset pricing, broadly defined. Presentation of work-in-progress or background material for proposed dissertation topics that are discussed and criticized by faculty members and fellow students. Presentation or research paper required. S/U grading.

**298C. Proseminar: Asset Pricing (4)** Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on empirical issues in area of asset pricing, broadly defined. Presentation of work-in-progress or background material for proposed dissertation topics that are discussed and criticized by faculty members and fellow students. Presentation or research paper required. S/U grading.

**401A. Microeconomic Theory (4)** Lecture, three hours. Limited to Master of Applied Economics students. Coverage of fundamentals of optimization, choices by price-taking agents, consumer and producer surplus, monopoly and competition, Walrasian equilibrium and two welfare theorems, constant returns to scale economy, choice over time, uncertainty, and information and market design. Letter grading.

**401B. Applied Economics (4)** Lecture, three hours. Limited to Master of Applied Economics students. How to be sophisticated users and producers of research on issues and policies in several core areas of labor, public, and health economics. Rigorous analyses of core policy questions with cutting-edge empirical analysis. Letter grading.

**402A. Macroeconomic Theory (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to main topics of graduate macroeconomics, including macroeconomic data, models of economic growth, supply and demand of factors of production, business cycle models, unemployment, monetary policy and inflation, and fiscal policy and deficits. Letter grading.

**402B. Applied Macroeconomics (4)** Lecture, three hours. Limited to Master of Applied Economics students. Study of alternative theories of causes of unemployment and inflation, with focus on Keynesian approach to monetary and fiscal policy and modifications and extensions of Keynesian ideas designed to explain financial crises. Letter grading.

**403A. Introduction to Statistical Methods and Econometrics (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to probability, statistics, econometrics, and time-series methods used in economics, business, and government. Topics include random variables, hypothesis testing, estimation, distribution functions, simple and multiple regression, and estimation with stationary/nonstationary processes. Letter grading.

**403B. Applied Econometrics (4)** Lecture, three hours. Limited to Master of Applied Economics students. Basic tools necessary for high-level cutting-edge empirical research. Coverage of variety of methods suited for empirical studies that apply to experimental data, quasi-experimental data, panel data, and cross-sectional data. Letter grading.

**404A. Writing and Presentation Skills for Economists I (4)** Seminar, three hours. Limited to Master of Applied Economics students. Designed to help students develop communication and presentation skills essential for success in any aspect of business. Practice in writing economics documents for variety of professional audiences. Writing taught as process—brainstorming, collaborating, continually revising, and challenging ideas. Presentation skills to focus on presenting information clearly and organizing ideas, with emphasis on role of audience when presenting, because audience determines diction, style, tone, organization, research, and ideas. Grammar incorporated as needed, especially in regard to writing. Letter grading.

**404B. Writing and Presentation Skills for Economists II (4)** Seminar, three hours. Limited to Master of Applied Economics students. Builds on skills learned in course 404A. Writing component to focus on summarizing, critiquing, and report writing. Process writing used and self-editing skills stressed. Presentations include summary/critique, opinion piece, and final group presentation that includes writing proposals. Grammar incorporated as needed, especially in regard to writing. Letter grading.

**405. Macroeconomic Implications of Globalization (4)** Lecture, three hours. Limited to Master of Applied Economics students. Development of understanding of some main macroeconomic implications of increasing integration of world economy through trade linkages, multinational production, and financial markets. Letter grading.

**406. Money and Banking (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to models and data used to understand connection between asset prices, health of financial sector, and macroeconomy, including review of recent papers to gain introduction to questions being addressed on research frontier. Letter grading.

**407. Economics of Entrepreneurship (1 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Examination of role of entrepreneurship and entrepreneurial strategies—source of ideas, value creation, market development, scaling, exit strategies. Group practice of entrepreneurship. Development of original ideas into business plans. Letter grading.

**408. Environmental Economics (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to major ideas in environmental economics by studying causes and consequences of pollution, with special emphasis on understanding China's environmental challenges and policy options. Letter grading.

**409. Forecasting Asset Prices (1 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Introduction to recent developments in international finance. Coverage of lending booms and financial crises both theoretically and empirically, as well as foreign exchange market anomalies and different approaches to forecasting exchange rates. Letter grading.

**410. Economists in Action (1 to 2)** Seminar, three hours. Limited to Master of Applied Economics students. How theory maps into policymaking. Renowned policymakers from Central Banks, Economics Ministries, and International Organizations to lecture on policy-relevant topics. Completion of assignments linking lectures with economic theory and real-world events. Letter grading.

**411. Inequality and Macroeconomy (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to analysis of economic inequalities and interplay between inequality and macroeconomy. What are relative roles of market forces and institutions in shaping dynamics of economic inequality? What are consequences of globalization on distribution of income within and between countries? Does inequality hamper economic growth and macroeconomic stability? How do macroeconomic policies and structural reforms affect distribution of income and wealth? Use of simple models and empirical analysis by taking global and historical perspective. Discussions about inequality in U.S. and Europe over last two centuries, as well as challenges raised by recent inequality trends in China, India, and Latin America. Letter grading.

**412. Fundamentals of Big Data (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to basic concepts, uses, and challenges of big data, with emphasis on pragmatic hands-on applications using real-world data for current and future big data practitioners—consumers of big data insights for economic applications. Letter grading.

**413. Data Analytics and Big Data (4)** Lecture, three hours. Recommended corequisite: course 412. Limited to Master of Applied Economics students. Designed for end users of big data, those who translate analytic results into business applications, with guest lecturers from wide spectrum of industrial and corporate big data users. Presentations of their business models for leveraging big data, sharing of data sets, and guiding students to extract actionable business insights for those industries. Letter grading.

**414. Asset Pricing and Portfolio Theory in Practice (4)** Lecture, three hours. Limited to Master of Applied Economics students. Study covers asset pricing and portfolio theory, critical areas for deeper understanding of financial markets and investments. Building from theory, incorporation of empirical analysis and real-world issues to bridge theory with practice through case studies. Letter grading.

**415. Evidence-Based Policy Analysis in Labor, Public, and Health Economics (4)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to key policy questions in labor, public, and health economics, including health care, education, unemployment, training programs, and welfare. Economic principles at heart of these topics and main approaches to scientifically evaluate policies that affect them, including data, current case evidence, cutting-edge empirical methods, and their relation to microeconomic theory. Letter grading.

**421. Incentives, Information, and Markets (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Introduction to concepts of information economics that lie at heart of modern economics and application of them to understand incentives within firms, as well as competition between them. Study of theoretical models and functioning of real-life markets, such as insurance, labor, and consumer markets. Consider-



ation of whether we can design policies that improve market outcomes. Role of models in economics, and how to tie data and theory together. Letter grading.

**422. International Economics (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Investigation of several theoretical frameworks in international economics followed by applications to empirical questions. Neoclassical trade models, analysis of firms and heterogeneous producers, and economic geography topics. Case studies and empirical papers focus on understanding determinants of trade patterns and on measurement of aggregate and distributional effects of international trade. Discussion of recent research on effects of NAFTA and Brexit, effect of trade on inequality in developed and developing countries, and impact of infrastructure investments on trade and development. Letter grading.

**423. Introduction to Applied Data Science (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Designed to build strong bases in tools and methods of data science and analytics. Introduction of tools for capture, transformation, imputation, visualization, and mapping of data for downstream processing in analytics pipeline. Introduction of analytics subsystems and scalable storage and processing of very large and complex datasets. Information theory, computational analysis, and behavioral economics with specific emphasis on data science in economics. Letter grading.

**424. Income Inequality (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Investigation of rise of earning inequality (with emphasis on U.S.), focusing on learning how to use models and data to quantify impact of range of forces on inequality. Overview of broad empirical trends, with emphasis on understanding how to document these facts ourselves. Consideration of three classes of potential explanations for these patterns: international connections (e.g., trade and immigration), institutional change (e.g., minimum wage and unionization), and technical change (e.g., computerization and spread of robots). Focus on quantifying these forces ourselves. Study of top income inequality: why have extremely rich become much richer than very rich? Focus on CEO compensation. Letter grading.

**425T. Machine Learning for Economists (4)** (Formerly numbered 425.) Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Covers set of fundamental machine learning algorithms, models, and theories, and introduces advanced engineering practices for implementing data-intensive intelligent systems. Topics involve both supervised methods (e.g., support vector machine, neural network, etc.) and unsupervised methods (e.g., clustering, dimensionality reduction, etc.), and their applications in classification, regression, data analysis, and visualization. Letter grading.

**426. Knowledge Discovery and Data Mining (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Study of theoretical and practical techniques in field of data mining and knowledge discovery. Topics include data processing, association rules, supervised learning, clustering, etc., and their applications in visualization, social network analysis, sentiment mining, and opinion analysis. Focus on making sense of large-scale or web-scale dataset, and providing students with first-hand project experiences. Letter grading.

**427. Applied Machine Learning (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Preparation: basic understanding of technology principles, basic programming skills, sufficient mathematical background in probability, statistics, and matrix analysis. Foundational course with primary application to data analytics. Intended to be accessible to students from backgrounds such as economics or mathematics, and to students from less technical backgrounds. Covers some fundamental topics in machine learning such as Bayesian learning, optimization for learning, metric learning, and various classification, regression, clustering techniques, and other advanced topics. Real-world data-intensive problems. Letter grading.

**428. Health Care Analytics: Methods and Applications (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Introduction to basic concepts of health economics. Development of skills in economic modeling and real-world data analysis. Written policy briefs and business cases evaluating pros and cons of different approaches to improving health care markets. Letter grading.

**429A. Professional Development for Emerging Economists I. (1 to 2)** Seminar, two hours. Limited to Master of Applied Economics students. Designed to help students develop professional skills essential for success in professional business settings. Aids students in translating topics covered in other courses into language and format that is accessible to industry/non-academic settings. Students conduct labor market research, identify and analyze in-

dustry trends, and develop targeted plan to achieve professional success. Exploration of skills identification, goal setting, researching employment market, and résumé writing. Letter grading.

**429B. Professional Development for Emerging Economists II. (1 to 2)** Seminar, two hours. Enforced prerequisite: course 429A. Limited to Master of Applied Economics students. Designed to help students develop professional, communication, and presentation skills essential for success in professional business settings. Aids students in translating topics covered in other courses into language and format that is accessible to industry/non-academic settings. Students practice presenting for variety of professional audiences. Exploration of presentation skills, personal branding, salary negotiation, and interviewing techniques. Letter grading.

**430. Applied Econometrics with Python. (3 to 4)** Lecture, three hours; discussion, one hour. Limited to Master of Quantitative Economics students. Introduction to econometrics and its applications to economics, business, and government using Python. Topics include simple and multiple regression, cross-sectional and panel data, instrumental variables, and binary choice models. Letter grading.

**431. Introduction to Econometrics, Cross-Sectional and Panel Data, and Time Series (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Introduction to econometrics, cross-sectional and panel data, and time series methods used in economics, business, and government. Topics include estimation, simple and multiple regression, cross-sectional and panel data, instrumental variables, and estimation with stationary/non-stationary processes. Letter grading.

**432. Data Science for Financial Time Series (4)** Lecture, three hours; discussion, one hour. Limited to Master of Quantitative Economics students. Data science provides many useful tools for modeling financial data and testing hypotheses on how markets work, and prices are formed. Study of these important tools. Focus on econometric models and methods to understand financial market dynamics. Topics include returns of financial assets, statistical tests on financial market efficiency, linear time series models, time-varying expected return models, heteroscedastic volatility models, optimal portfolio choice problem, capital asset pricing models, factor models, portfolio allocation, tracking and risk management. Letter grading.

**433. Core Finance (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Introduction to core principles of asset valuations. Emphasis on common economic reasoning used in valuation problems. Derivations and study of valuation formulas for three broad asset classes: fixed income securities, equity, and derivatives. Practical applications to investment problems, and relation to current financial news. Letter grading.

**434. Machine Learning and Big Data for Economists (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Discussion of some machine learning techniques including lasso, regression trees, random forests, and neural networks. Covers most recent developments at intersection of machine learning and econometrics, now commonly referred to as double machine learning. Study of double machine learning in detail, and discussion of how to apply it to enhance analysis of classical econometric problems, such as program evaluation and demand estimation. Letter grading.

**435. Principles of Big Data Management Systems (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Focus on modern data management systems that are used in data analytics. Students are exposed to cutting-edge data management concepts and systems and provided with working knowledge needed to manage large-scale data. Covers modern data management techniques of cloud storage systems, NoSQL databases, and map-reduce computing paradigm. Letter grading.

**436. Introduction to Financial Accounting (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Financial accounting is concerned with preparation and public dissemination of financial reports designed to reflect corporate performance and financial condition. By providing timely, relevant, and reliable information, these reports facilitate decision-making of investors, creditors, and other interested parties. Financial markets depend on information contained in these reports to evaluate executives, estimate future stock returns, assess firms' riskiness, and allocate society's resources to their most productive uses. Letter grading.

**437. Health Economics: Understanding Roles of Regulation, Public Policy, and Demographic Change (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Economics students. Applied microeconomics study of economics of health care sector. Examination of trends in health care costs, functioning of health care sector, structure of insurance markets, and current

public health issues. Study of how underlying economic concepts such as adverse selection and moral hazard lead to market failures. Examination of impact of policy and demographic change on future costs. Letter grading.

**441A. Applied Data Management for Economists (1)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to modern practices in data gathering, cleaning, and warehousing. Topics include web scraping using application programming interfaces, engineering of R packages, and data manipulation in Structured Query Language (SQL). Emphasis on applications of data pipeline expected of entry-level analyst. Supplements Master of Applied Economics coursework by offering solutions to expedite R coding techniques and dissemination of analytic findings. Letter grading.

**441B. Applied Data Management for Economists (1)** Lecture, three hours. Limited to Master of Applied Economics students. Development of student data visualization toolkit using Tableau and Python packages. Focus on techniques to simplistically communicate data, Excel functions/dashboards, Tableau dashboards, Matplotlib library, and interactive visualizations with Plotly. Letter grading.

**441C. Applied Data Management for Economists (1)** Lecture, three hours. Limited to Master of Applied Economics students. Introduction to business intelligence software relevant for big data and financial services companies. Survey of Amazon Web Services, Microsoft Power BI, and Apache Hadoop, and deployment of automated solutions on these platforms. Development of presentation skills necessary for industry. S/U or letter grading.

**442A. Econometric Python Laboratory (1)** Laboratory, three hours. Limited to Master of Quantitative Economics students. Simulates tasks of financial researcher by encouraging creative approaches to interest rate monitoring, finding leading indicators, and portfolio construction. Students locate and clean financial datasets, then conduct experiments running significance tests throughout data pipeline. Coursework includes many open questions that offer students opportunities to take novel approaches and investigate forecasting with basket of procedures. Letter grading.

**442B. Master of Quantitative Economics Finance Laboratory (1)** Laboratory, three hours. Limited to Master of Quantitative Economics students. Broadens exposure to tasks seen in financial analyst role. Coding tasks are centered around options order book, depth chart, volume profile, cointegrated assets, and commodities data. Theory covered consists of behavioral finance relating to technical analysis, applications of portfolio optimization and hedging techniques. Letter grading.

**442C. Master of Quantitative Economics Finance Laboratory (1)** Lecture, three hours. Limited to Master of Quantitative Economics students. Offers hands-on experience in forecasting of assets in capital markets. Using python students pull social media data to create leading indicators of market fundamentals. Forecasting of asset of choice using neural networks and ensemble-weighted machine learning models with fundamental indicators as inputs. Letter grading.

**443. SQL and Data Management. (2 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Introduction to most requested data management tools in industry. Students gain hands-on experience with SQL database queries and database management through integrations with database management systems, query editors, and Python and R programming languages. Students practice saving advanced commands as stored procedures on collective database, simulating tasks seen in real world. Use of Excel and Visual Basic for Applications to make data cleaning, visualization, and data management processes more efficient. Letter grading.

**444. Stock Market and Fundamental Equity Research Analysis. (1 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Preparation: basic understanding of finance and financial markets concepts and theories. Exploration of fundamental analysis, method of measuring security's value by assessing economic and financial factors. Through lectures, readings, and interactive discussions, exploration of macroeconomic and microeconomic factors that affect intrinsic value of security. Study is designed to deepen student exposure to world of fundamental equity research through research and development of investment memorandum. Letter grading.

**445. Applied Machine Learning for Economists I. (2 to 4)** Lecture, three hours; discussion, one hour. Limited to Master of Quantitative Economics students. Exploration of how machine learning can be used to find underpriced real estate opportunities—representative of types of problems frequently faced in industry by analysts, computer scientists, economists, and data scientists. Use of machine learning algorithms and tools to find undervalued assets through applied approach. Exploration, cleaning, wrangling, and analysis of property listings dataset. Use of trees and forests to improve ability to find good deals. Incorporation of additional datasets—demographic and census data—and use of principal component analysis and support vector machines to better identify properties. Use of Python, Pandas, SciKit Learn, Apache Spark, Apache Sedona, and other technologies. Letter grading.

**446. Applications of Cloud Computing and Blockchain. (2 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Introduction to cloud services software relevant for big data analytics and data scientists. Survey of Amazon Web Services. Study of automated solutions to data gathering, storage, and machine learning. Students acquire specific skill sets in application programming interfaces and web scraping with Python through hands-on problem solving. Use of blockchain and smart contracts to make business processes more efficient through technical and theoretical application. Letter grading.

**447. Applied Financial Forecasting and Machine Learning. (2 to 4)** Lecture, three hours. Requisites: courses 430, 431. Limited to Master of Quantitative Economics students. Outlook of economy is of vital importance for many key decisions. Introduction to theory and application of cutting-edge tools used by economists and business leaders to inform their views of economy. These tools are applied to forecast or nowcast key economic indicators such as inflation, unemployment, and gross domestic product. Examination of how forecasts of fundamentals can be used to inform our views on asset prices. Letter grading.

**448. Teamwork and Leadership in Data Science. (2 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Teamwork and leadership skills are essential to excelling in virtually any role in any field. Understanding of how teams work and whether, why, and how one can obtain and thrive in leadership role is critical. Students learn how to lead, manage, negotiate, and effectively participate in teams of data scientists, learning from, interacting with, and presenting to data science leaders and other distinguished experts. Students gain practical insights and skills that can be applied in field of data of science, in related fields, and more broadly, in their lives and careers. Letter grading.

**449. Collaboration and Team Management for Emerging Economists. (1 to 4)** Seminar, three hours. Limited to Master of Quantitative Economics students. Designed to help students develop social-emotional learning skills through interactive activities and lessons to improve their abilities to succeed in variety of team settings. Lessons and activities are designed to be highly interactive, expressive, and creative and aid students in stress reduction, emotion management, and team building. Students are aided in translating topics covered in other courses into language and format that is accessible to industry/non-academic settings. Letter grading.

**450. Master of Quantitative Economics Capstone Project. (1 to 4)** Tutorial, three hours. Limited to Master of Quantitative Economics students. Semi-independent or directed-study in which students complete their capstone project. Capstone project is final element of Master of Quantitative Economics program, and is intended to help students transition from academic studies to professional world. Includes analysis of quantitative and/or qualitative data, research techniques, and writing strategies. Students submit drafts of project components throughout quarter to adviser. S/U grading.

**451. Financial Institutions and Monetary Policy (4)** Lecture, three hours; discussion, one hour. Limited to Master of Quantitative Economics students. Study of complex financial architecture that has emerged in last several years, and its evolution over time. Covers institutional detail, and theoretical and empirical research on monetary policy. Development of some basic models and production of Python code to produce plots regarding relevant data. Letter grading.

**452. Empirical Industrial Organization (4)** Lecture, three hours; discussion, one hour. Limited to Master of Quantitative Economics students. Introduction to empirical methods and applications in industrial organization (IO). Development of empirical toolkit to estimate industry models of demand and supply and apply it to analysis of emerging issues in IO from regulator, consumer, and firm perspective. Underlying theme is that most real-world markets are neither perfectly competitive, nor strict monopolies, but rather involve strategic interactions among firms and consumers. To capture these interactions empirically, development of empirical models of consumer demand and firm competition, and use of these models to analyze interactions of firm strategies (including pricing, product quality choices, and advertising) and market structure across range of industries. Letter grading.

**453. Fundamentals of Blockchain and Web 3.0. (1 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Requisite: course 409 or 432. Designed for students seeking to understand the implementation of blockchain technology in various industries and its transformative potential in the realm of financial services and the global economy. In today's competitive landscape, major financial institutions, digital asset investment firms, data analytic companies, venture capital funds, government agencies, and Web3 companies among others entities are actively exploring blockchain and digital assets, leading to a growing demand for blockchain experts, data analysts, researchers, and executives. These institutions are leveraging blockchain to streamline financial transactions including cross-border payments, over-the-counter transactions, bond issuances, tokenized real-world assets,

and other financial instruments. Provides a comprehensive exploration of blockchain technology and its applications in finance and economics. Letter grading.

**454. Introduction to Cryptocurrency Finance. (1 to 4)** Lecture, three hours. Limited to Master of Quantitative Economics students. Requisite: course 409 or 432. Introduction to financial concepts in cryptocurrency industry. Addresses regulatory issues around crypto currencies with institutional infrastructure that is starting to be built around this space. In-depth exploration of the historical performance and valuation of cryptocurrencies, with analysis of risk associated with the price. Examination of the development of the crypto derivatives market, both with futures and options. Discussion of centralized finance, staking, and decentralized finance space. Introduction of concept of security tokens and tokenization of hard assets and digital assets. Covers emerging field of non-fungible tokens (NFT). Introduction of both asset and wealth management in the blockchain and cryptocurrency space relative to materials covered, including the instructor's field experience. Letter grading.

**480. Fundamentals of Project Management. (1 to 4)** Seminar, three hours. Limited to Master of Quantitative Economics students. Covers fundamentals of project management and applications to variety of business settings. Examination of key project management terms and applications; project management tools and processes; how to analyze needs and expectations of key stakeholders; project documentation and reporting. Special attention paid to translating technical findings into business terminology along with developing and delivering insightful business presentations for leadership. S/U or letter grading.

**495. Teaching College Economics (2)** Seminar, one hour; laboratory, three hours. Designed for graduate students. Required of all new teaching assistants. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Individual Study. (2 to 8)** Tutorial, to be arranged. Directed individual study or research. S/U grading.

**597. Individual Study: Graduate Examinations. (2 to 8)** Tutorial, to be arranged. Directed individual study in preparation for MA comprehensive examination or PhD qualifying examinations. S/U grading.

**599. Individual Research: PhD Dissertation. (2 to 8)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Directed individual research in preparation of PhD dissertation. S/U grading.

# Education

## Education Courses

### Lower Division

**10. Introduction to Educational Issues and Scholarship (5)** Lecture, two hours; discussion, two hours. Introduction to broad landscape of public education in U.S. Intended for those interested in educational research, policy, or teaching in both formal and informal educational contexts. Readings highlight work of educational researchers from UCLA's Department of Education, especially ways their scholarship intersects with policy and practice. Students work in groups to identify real-life problem affecting public education in Los Angeles. Study of this problem from multiple perspectives. Conceptualization of socially-just solution. Letter grading.

**11. Education, Equality, and Future of American Society: Problems, Prospects, and Policies (5)** Lecture, four hours; discussion, one hour. Schools are primary institutions charged with responsibility of preparing young people for their roles as citizens so that they can participate in our democracy. Public schools also serve as key sites where two essential, and at times conflicting, functions are carried out: students are sorted based on measures (and perceptions) of their ability to fill occupations and roles that are essential to economy; and students are educated in hopes that next generation will acquire knowledge, creativity, and problem-solving skills to solve problems created by previous generations. Focus on understanding challenges, contradictions, and complexities associated with carrying out these functions. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**35. Introduction to Inquiry and Research in Education (5)** Lecture, two hours; discussion, two hours. Introduction to empirical and analytical educational research. Intended for undergraduates interested in learning how to find, interpret, and evaluate research that investigates important questions around education and education systems. Overview of multiple methods of conceptualizing inquiry and gathering evidence, including qualitative (e.g., ethnographic, semi-structured interviews, case study), quantitative (e.g., surveys, experimental, descriptive), and mixed methods approaches. Introduction to software processing and analysis of data. Highlights ethics of conducting research in social sciences, and norms of conducting and reporting research in the field of education. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**92F. Academic Success in Undergraduate Experience (2)** Lecture, one hour; discussion, one hour. Designed for first-year or transitioning students to promote understanding of factors involved in making adjustments to college experience, both academic and social. Letter grading.

**98. Critical Issues in Education (4)** Seminar, 30 minutes; laboratory, 30 minutes. Introduction to critical educational issues and approaches taken by researchers, policymakers, and education advocates as they respond to these issues. Laboratory portion of course engages students in small research groups where they acquire background on particular issue of interest, learn about social sciences research, and conduct mini-research projects. May be repeated for credit. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Foundations: Histories and Philosophies of Education (4)** Lecture, four hours. Prerequisites: courses 10, 35. Limited to Education and Social Transformation majors. Introduction to central concepts underlying the study of education in the U.S. In alignment with the major, focus on analyzing how education is studied, and assumption of the vital importance of education in promoting social transformation. Study focuses on the questions of the purpose of education for social transformation and of social transformation. Letter grading.

**101B. History of Schools in U.S. (4)** Lecture, four hours. Intensive consideration of American society, including its racial and cultural diversity as well as how settler colonial projects influence our present conditions. Consideration of historical development of schools in U.S., examining issues of racism, ethnic and gender differences, perspectives of cultural diversity, and impact on classroom instruction. Critical analysis of contexts and structure of public education in California, focusing on state, district, and school governance and finance. Letter grading.

**101C. History of Higher Education (5)** (Formerly numbered C101.) Lecture, three hours; discussion, one hour. Exploration of major eras in history of higher education. Topics include issues concerning access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media. Letter grading.

**102. Mexican Americans and Schools (4)** (Same as Chicana/o and Central American Studies M102.) Seminar, two hours; discussion, two hours. Theoretical and empirical overview of Chicana/Chicano educational issues in U.S., with special emphasis on disentangling effects of race, gender, class, and immigrant status on Chicana/Chicano educational attainment and achievement. Examination of how historical, social, political, and economic forces impact Chicana/Chicano educational experience. P/NP or letter grading.

**103. Asian American Education and Schooling (4)** (Same as Asian American Studies M114.) Seminar, four hours. Examination of existing body of research from various disciplines on Asian/Pacific American educational experiences. Letter grading.

**104A. Introduction to Exceptional Learners (4)** (Formerly numbered 134.) Lecture, two hours; discussion, one hour. Survey of characteristics and related educational needs of students (preschool through high school) who vary in mental, physical, psychological, and social characteristics. Focus on disabilities, with exploration in area of gift/talented education. Emphasis on inclusion, and legal, social, and philosophical issues associated with it. Students learn perspectives from disability studies and engage in class activities designed to challenge students to put inclusion into practice. Students develop understanding of various areas and exceptionalities of special education with emphasis on role of student special needs in context of general education settings. Letter grading.

**105A. Early Childhood Education and Policy (5)** (Formerly numbered 105.) Seminar, four hours. Overview of early care and education (ECE) landscape in U.S. and variety of policy systems used to provide care for young children. Consideration of possibilities and pitfalls of ECE as much hailed solution for educational inequality. Critical thought about how to use policy to provide young children with what they need to thrive. Letter grading.

**105B. Topics in Child Development and Social Policies (5)** (Formerly numbered 133.) Seminar, four hours. Research seminar designed to enable students to gain basic understanding of ways in which public policies are established and implemented, learn about policy landscape in several major domains of child and family life in U.S. and other countries, and use scientific research on children's cognitive and social development to evaluate and understand effects of social and economic policies. Letter grading.

**105C. Comparative Educational Policies and Practices (5)** (Formerly numbered 109C.) Seminar, four hours. Cross-national survey of educational policies and practices in delivery of education services. Comparative perspective on national context defining institutional differences in policy and practices in delivery and access, types (within tier and sector diversity), and funding mechanism for education services in both developing and developed country contexts. Focus on examination of state of education and socio-political, economic, and cultural factors that contribute to similarities and differences in institutional structures, organizational, and management functions, and on agenda for consideration of equality and equity in deployment of resources for realization of inclusive quality education for all. Early childhood education, foundational education, post-secondary education (including university and non-university systems), and lifelong learning (and adult education) as themes informing cross-national comparison of policies and practices in delivery of education services. Letter grading.

**105D. Policy Analysis and Real Politics of Education (5)** (Formerly numbered 110.) Lecture, two hours; discussion, two hours. Exploration of relationship between scholarly policy analysis and actual workings of policy systems. Selected topics include achievement standards and assessment, school finance, equal access to education, and school reform. Letter grading.

**105E. Organization for Economic Cooperation and Development and Education (5)** Seminar, three hours. Introduction to education policy analysis at international level with focus on Organization for Economic Cooperation and Development (OECD) program of work and outputs related to field of education. Overview of history of OECD and model of governance related to education, criticisms of OECD's power and influence on education, as well as coverage of range of OECD comparative data, comparative studies, and thematic and policy reviews related to education. Letter grading.

**106A. Education and Law (5)** (Formerly numbered 129.) Seminar, four hours. Research seminar providing overview of high-profile legal controversies that shape so many policy debates at both K-12 and higher education levels. Major areas of focus include campus safety, religion and schools, educational quality and law, broadband right to equal educational opportunity, and Internet-related issues and concerns. Letter grading.

**106B. Lesbian, Gay, Bisexual, and Transgender Issues in Education and Law (4)** (Formerly numbered 147.) Lecture, four hours. Lesbian, gay, bisexual, and transgender-related controversies that arise in schools, colleges, and universities today and how they are being addressed by legal and education communities. In particular, examination of real-life consequences of current laws and exploration of what might be done to make things better for all persons. Letter grading.

**106C. Diversity, Democracy, and Law (4)** Lecture, four hours. Introductory overview of high-profile legal controversies that shape so many of policy debates regarding access to higher education and equity for underrepresented students, free speech and expression, academic freedom and other First Amendment-related controversies and legal issues. Letter grading.

**107A. Race, Class, and Education Inequality in U.S. (5)** (Formerly numbered 130.) Lecture, two hours; discussion, two hours. Focus extensively on understanding educational experiences of following groups in U.S.: African Americans, Asian Americans and Pacific Islanders, Chicanas/Chicanos/Latinas/Latinos, and low-income white Americans. Examination of how historical development of public education in U.S. has influenced its present form. Critical look at some current issues and policy debates in education, including debate over school reform, bilingual education, and affirmative action. Letter grading.

**107B. Race and Education: Access, Equity, and Achievement (5)** (Formerly numbered 164.) Seminar, four hours. Social/psychological perspective on education, with particular attention to race, ethnicity, and inequality. Study of structural, social, and personal determinants of educational outcomes. Consideration of relationship of schools to social context and other societal institutions. Examination of how education sets life trajectory in America and effects of race/ethnicity on access to educational opportunity in our society. Letter grading.

**108. Sociology of Education (5)** (Same as Sociology M175.) Lecture, four hours; discussion, one hour. Study of how U.S. educational system both promotes socioeconomic opportunities and maintains socioeconomic inequalities: historical and theoretical perspectives on role of education in U.S. society; trends in educational attainment; ways in which family background, class, race, and gender affect educational achievement and attainment; stratification between and within schools; effects of education on socioeconomic attainment, family, health, attitudes, and social participation; educational policies to improve school quality and address socioeconomic inequalities. Letter grading.

**109A. Globalization and Learning (4)** (Formerly numbered 152A.) Lecture, two hours; discussion, two hours. Introduction to different conceptualizations of globalization and their relationship to educational processes and learning in contemporary societies. Discussion of several concepts and theoretical lenses as basis for approaching and understanding how dialectics of global and local are affecting educational systems and learning over lifespans. Letter grading.

**109B. Global Citizenship Education (4)** (Formerly numbered 152B.) Lecture, four hours. Exploration of issues of global citizenship in education and society as whole by analyzing critical challenges and envisioning possible solutions to multiple layers of theoretical, empirical, and practical implementation of global citizenship education. Examination of how global citizenship education and education for sustainable development are beginning to impact life, actions, policies, and practices of educators, students, non-government organizations, governments, multinational organizations, and other key players in local and global contexts. Examination of how global citizenship education impacts our worldview, teaching, and learning as we strive to envision and work toward more just and sustainable society. Letter grading.

**111. Politics of Education (5)** (Formerly numbered C111.) Lecture, two hours; discussion, two hours. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as foundation for public policy analysis; interest groups in education policy formation and implementation; and focus on Freirean pedagogy. P/NP or letter grading.

**112. Black Student Activism: History of Resistance on Campus (4)** Lecture, three hours; discussion, one hour. Activism is long-standing component of student life on U.S. college and university campuses. Focus on Black student activism. As higher education became more accessible to Black Americans, new wave of activism entered college campuses, with Black Lives Matter movement being one of most recent examples. Examination of philosophical, intellectual, social, economic, and political elements that have shaped and propelled Black student activism over past two centuries. Exploration of earliest activist activities among Black students, ranging from abolitionist movement in early 1800s to fight for Black and African studies programs during 1960s and 1970s. Interrogation of what past teaches about Black student activism today. Study includes discussions, mock debates, case studies, and primary source analyses. Letter grading.

**113. Democracy, Justice, and Education (5)** Lecture, three hours. Democracy, justice, and education are core ideals that define public discourse and scholarship about schooling. Exploration of these ideals from philosophical and practical perspective in context of century-old community schools movement. Global pandemic has renewed public interest in community schools framed as equity-focused anti-poverty reform to provide integrated social supports such as health, nutrition, and after-school programs. Movement also has strong democratic roots tied to local control, collective problem solving, and community-based learning—challenging ideas about who has power, how young people learn, and how teachers teach. Inquiry grounded in experience of two UCLA community schools as well as five other community school sites chosen by students. Examination of whether and how these schools are sites of social transformation by investigating contexts, theories, and practices that define their work. Letter grading.

**116. Indigenous Presence: Land, Place, and Space in Higher Education (4)** Lecture, four hours. Exploration of what it means to talk about lands/waters, place, and space. Exploration of how histories of place are both present and absent on college campuses and higher education settings. Students reflect on personal mobilities and relationships to Indigenous landscapes and geographies. Letter grading.

**117. Road Trip: Exploring College Campus Cultures across U.S. (5)** Seminar, four hours. Study of what other college campuses beside UCLA have to offer. Intended for students interested in understanding prominent aspects of non-mainstream U.S. colleges and universities. Exploration of institutional missions of special mission colleges and universities, how these institutions provide services to students, and unique strengths and challenges on these campuses through discussions, mock debates, case studies, and assignments that delve deeper into experiences of attending these special mission colleges and universities. Letter grading.

**118. Sociology of Community Colleges (5)** Seminar, four hours. Application of existing research, and sociological and economic theories to analysis of community colleges. Scholars have employed diverse set of concepts, theoretical frameworks and methods to understand these educational institutions. Examination of this sector of higher education in U.S. through range of qualitative, quantitative, historical, and case studies. Covers economic and sociological foundations of research on community colleges and their missions (transfer, remediation/developmental, adult basic education, English as second language, workforce development, etc.), institutional dynamics and organizational culture, government and business impact, for-profit colleges, social media use among students and administrators, student support and community-building, and effective reform efforts. Letter grading.

**119. Variable Topics in Histories and Philosophies of Education (4)** Seminar, four hours. Variable topics course organized around courses that introduce students to landscape of education within historical, disciplinary, and policy contexts. Consult Schedule of Classes for topics and instructors. May not be repeated for credit. Letter grading.

**120. Foundations: Contexts for Teaching, Learning, and Development (4)** Lecture, four hours. Requisites: courses 10, 35. Limited to Education and Social Transformation majors. Introduction to basics of learning sciences and learning theory, acknowledging that learning takes place in multiple contexts both inside and outside of the classroom. Discussion of promising practices to meet the needs of students at each stage of development. Letter grading.

**121. Introduction to Media Literacies (5)** (Same as Information Studies M121.) Seminar, four hours. Exploration of relationships between media, technology, and popular culture. Students guided to analyze media representations, question process of normalizing dominant ideologies, and create counter-hege-

monic media messages. Through application of critical media literacy framework, students expand notions of literacy to be more inclusive of all types of texts; and deepen their abilities to question power of word, image, and sound-bite to represent social and environmental injustice. Letter grading.

**122. Indigenous Pedagogies (4)** Lecture, four hours. Introduction to the diversity of Indigenous voices in education, Indigenous epistemologies, and Indigenous pedagogical approaches. Indigenous pedagogies have been developed and maintained across multiple generations. Oftentimes, these pedagogical approaches stand in contrast to common practices of schooling in the U.S. Exploration of writings of Indigenous scholars who are articulating the theoretical, ethical, and practical dimensions of Indigenous approaches to teaching and learning. Consideration of what theories about human life and relations organize Indigenous approaches to education; role of stories and storywork within Indigenous pedagogies; and role of lands and water within Indigenous pedagogies. Draws heavily from Indigenous scholarship in what is now the U.S. and Canada, although much of the ideas are applicable to or have resonances with many Indigenous peoples and pedagogies around world. Letter grading.

**123. Teaching Profession (5)** Seminar, four hours. Exploration of traditional and alternative teaching practices and public responses to teachers teaching and students learning. Examination of education in socioeconomic context and discussion of some philosophical questions that challenge teaching profession. Letter grading.

**C124. Theory and Practice of Intergroup Dialogue: Building Facilitation Skills (4)** (Formerly numbered C160.) Seminar, four hours. Topics include social psychology of intergroup relations, intercultural and dialogic communication theories, methods for reconciling and bridging differences in schools and communities, research and evaluation of intergroup dialogues and other educational methods for improving intergroup relations, and core competencies for planning, delivering, and evaluating intergroup dialogues in multicultural settings. While providing foundational grounding in theory and pedagogy of intergroup dialogue, particular attention to relationships between intergroup dynamics, structural inequalities, systems of privilege and oppression, and mental health outcomes and disparities among populations. Concurrently scheduled with course C244. Letter grading.

**CM125XP. Narratives of Justice: Disrupting School-to-Prison Pipeline—Arts, Activism, and Agency (4)** (Formerly numbered CM163.) (Same as African American Studies CM113XP.) Lecture, four hours; discussion, one hour. Exploration of policies and practices, art and activism, and other forms of agency engaging school-to-prison pipeline. Concurrently scheduled with course CM229B. P/NP or letter grading.

**126. Language, Literacy, and Academic Development: Educational Considerations for School-Age Multilingual and English Language Learner Students (5)** (Formerly numbered 166.) Seminar, five hours. Use of child-centered approach to examine instructional strategies and assessment practices with preK-12 multilingual and English learner (EL) students who are learning academic content at same time they are acquiring English (and possibly additional languages) in school. Critical comparison of effectiveness of English-only programming with dual-language approaches (e.g., two-way immersion, transitional bilingual education) and roles of summative and formative assessments in educational decision making with multilingual and EL students. Letter grading.

**127. Educational Psychology: Contexts for Teaching and Learning (5)** Lecture, two hours; discussion, two hours. Not open for credit to students with credit for course 128. Broad overview of educational psychology, with examination of relationship of teaching and learning; various perspectives as to how children learn; issues of teaching and learning that arise based on child's social class, ethnic background, gender, age, and level of ability. Letter grading.

**128. Educational Psychology: Contexts for Learning and Development (4)** Lecture, four hours. Not open for credit to students with credit for course 127. Overview of theories, methods, and research in educational psychology. Education psychology involves study of how students learn and contexts that support this learning. Learning is complex process. Study of research and theory related to different aspects of learning including cognition, motivation, and self-regulation. Discussion of ways in which educators can support these processes in students. Letter grading.

**129. Arts Education Undergraduate Practicum: Preparation, Observation, and Practice (4)** (Formerly numbered M190.) (Same as Arts Education M192.) Seminar, three hours. Enforced requisite: course M142. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students implement and evaluate original arts education programs under guidance of faculty members in small course settings. P/NP or letter grading.

**129XP. Arts Education Undergraduate Practicum and Capstone Project (4)**

(Formerly numbered M190SL.) (Same as Arts Education M192XP) Seminar, three hours; practicum, three hours; outside study, six hours. Enforced requisites: courses M129, M142. Limited to juniors/seniors. Continuation of arts education training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students continue to implement and evaluate original arts education programs under guidance of faculty members and designated guiding teachers in K-12 public school settings. May be repeated for credit with consent of instructor. P/NP or letter grading.

**130AX. Instructional Apprenticeship in Teaching and Learning at UCLA Lab School (4)** (Formerly numbered 196C.) Tutorial, 10 hours. Requisite: course 180. Limited to juniors/seniors. Not open for credit to students with credit for course 130BX or 130CX. Training and supervised apprenticeship for advanced undergraduate students at UCLA Lab School (Corinne A. Seeds campus), K-6 elementary school on UCLA campus. Students gain understanding of innovative educational work that goes into teaching and learning at UCLA Lab School through seminars, readings, observations, and discussions. Individual meetings with faculty mentor throughout term. Letter grading.

**130BX. Instructional Apprenticeship in Teaching and Learning at UCLA Partner Schools (4)** (Formerly numbered 196D.) Tutorial, 10 hours. Requisite: course 180. Limited to juniors/seniors. Not open for credit to students with credit for course 130AX or 130CX. Introduction to K-12 teaching profession through training and supervised off-campus experiences at UCLA partner schools. Students gain grounded understanding of social issues in education through readings, observations, direct support in classrooms, and tutoring activities. Individual meetings with faculty mentor throughout term. Letter grading.

**130CX. Instructional Apprenticeship in Teaching and Learning at UCLA Community Schools (4)** Tutorial, 10 hours. Requisite: course 180. Not open for credit to students with credit for course 130AX or 130BX. Examination of how UCLA partners with Los Angeles Unified School District (LAUSD) to educate, engage, empower, and serve students and families through community schooling model. Through readings, discussions, guest speakers, and course assignments, students are offered varied opportunities to examine case studies on how two institutions, UCLA and UCLA Community Schools, partner together to ensure greater engagement and democratic development to transform neighborhood school, as well as link school day and after-school curricula to solve locally identified, real-world, and community problems to uplift entire school community. Students gain grounded understanding of social issues in education through readings, observations, direct support in classrooms, and tutoring activities. Letter grading.

**131A. Language, Literacy, and Human Development Research Group Seminars (5)** (Formerly numbered M194A.) (Same as African American Studies M194A.) Seminar, three hours; laboratory, two hours (when scheduled). Requisite: course 180. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and language. Letter grading.

**131B. Culture, Gender, and Human Development Research Group Seminars (5)** (Formerly numbered M194B.) (Same as African American Studies M194B.) Seminar, three hours; laboratory, two hours (when scheduled). Requisite: course 180. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and gender. Letter grading.

**131C. Culture, Communications, and Human Development Research Group Seminars (5)** (Formerly numbered M194C.) (Same as African American Studies M194C.) Seminar, three hours; laboratory, two hours (when scheduled). Requisite: course 180. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and technologies. Letter grading.

**132. Autism: Mind, Brain, and Education (5)** Lecture, two hours; discussion, two hours. Study of autism spectrum disorders (ASD) and related disabilities. Discussion of characteristics of disorder, effective interventions, and exploration of impact of children with ASD on families. Limited number of independent observations of individuals in community required. Letter grading.

**133. Literacy in Society (5)** (Formerly numbered 122.) Lecture, four hours. Literacy plays significant role in cognition and language, political governance and law, and economic, social, and personal well-being. Exploration of these aspects of literacy and their implications for teaching and learning. Examination of literacy in workplace, healthcare, and community. Consideration of new literacies, interrelationship between literacy and technology, and impact of illiteracy on income and opportunity. Letter grading.

**134. Early Childhood Mathematics Education (5)** Seminar, two hours; fieldwork, two hours. Focus on how research in early childhood mathematics can be used to engage young people in learning mathematics. Study addresses research on how young children learn mathematics, teaching preschool mathematics, and policy context that shapes student opportunities in early childhood education. Particular attention paid to equity issues. Includes fieldwork at local preschool site working with students in mathematics. Letter grading.

**135. Environmental Justice through Lens of Media and Education (5)** (Same as Information Studies M135.) Seminar, four hours. Exploration of human relationships with natural world, historically and today. Students take critical look at ways information has been shaped, audiences positioned, and movements manipulated to promote commercial interests over public good. Exploration of progressive movements that have in past challenged—and currently challenge—neoliberal agendas, extractive policies, and unsustainable practices. Letter grading.

**136. Working Families and Educational Inequalities in Urban Schools (4)** (Same as Labor Studies M136.) Seminar, three hours; fieldwork, five hours. Exploration of complex relationship between working-class and poor communities and inequalities in American urban schools. Drawing on multiple disciplinary frameworks that address issues of race, ethnicity, and immigration, schools viewed as sites where inequalities are produced and resisted. Review of history of exclusionary treatment and divergent conceptual frames that educational researchers have used to understand notion of inequality, access to quality public education, and how race, ethnicity, and class affect school experiences for working-class and poor communities. Look inside schools through community service learning opportunity to examine systems, structures, and everyday practices that sustain and reproduce inequality and policies that intend to remedy educational inequalities in urban schools. Opportunity to investigate issues of working-class families and inequalities as they relate to students' own communities and experiences. P/NP or letter grading.

**137. Critical Digital Media Literacies (4)** (Formerly numbered 137.) (Same as Information Studies M137.) Lecture, four hours. Students question relationships with digital media and information society and explore how media and information communication technologies are improving society, strengthening democracy, and opening up opportunities for challenging hegemony and promoting social transformation. Problematicization of social media and questioning of ways it is being used to surveil, capture data, spread hate, mislead, distract, and destabilize democracies. Students analyze media representations, question process of normalizing dominant ideologies, and create counter-hegemonic media messages. Combines theoretical foundations of cultural studies and critical pedagogy with practical applications of new digital media and technology, as well as traditional print-based means of communication. Exploration of media representations of race, class, gender, sexual orientation, and other identity markers. Students analyze and create media projects related to education. Letter grading.

**138. Cognitive Development and Schooling (5)** Lecture, four hours; discussion, one hour. Overview of theories, methods, and research on children's cognitive development and implications of this work for educational practice. Covers range of research from different perspectives, drawing from domains such as developmental psychology, cognitive psychology, developmental cognitive neuroscience, and education. Students learn about basic cognitive processes. Exploration of ways in which contexts—including those at home, early-care settings, and school—impact children's development. Letter grading.

**139. Culture and Cognition (4)** Lecture, four hours. Introduction to theoretical foundations of research on culture and cognition. Drawing from insights of cultural psychology and anthropology, study of various definitions of community spaces, etc.; and consideration of social, political, and educational implications of ways these terms are conceptualized. Study address questions of relationship between culture and development of mind; how this relationship might be studied; what insight research on culture and cognition offers for the organization of learning environments; and for understandings of diversity and equity. Letter grading.

**140. Educational Perspectives of Relational Practices in Modern Medicine (5)** Seminar, four hours. Systematic discussion of personhood and body concepts, in context of asymmetric person-to-person relationships in high-tech modern medical training and practice. Exploration of diverse implications for building theories of relational practice. Students learn to use phenomenological approach, to make sense of lived experience of making sense of world we inhabit; and stance on who we are and activities at hand in everyday practices. Phenomenological approach maintains focus on how things show up; what affordances emerge in activities and practices; and how we comport toward them making sense of them, others, and ourselves. Letter grading.

**141. Adolescent Development (5)** Lecture, four hours. Introduction to adolescence—period of tremendous change and growth across all domains of development, including physical, social, cognitive, and emotional during second decade of life. Topics may include pubertal development, adolescent brain development, family, friend, peer, and intimate relationships, social identity and intergroup relations, school, work, and civic engagement. Draws on developmental science research on adolescence and applies that knowledge to examination of practices and policies. Contemporary and global conceptualizations of adolescence and more complex understandings of developing self in relation to significant others (i.e., family, friends, peers) and bounded in socio-historical time and place (i.e., school, work, media). Letter grading.

**142. Introduction to Arts Education for Multiple Publics: Theory and Practice (4)** (Formerly numbered M104.) (Same as Arts Education M102.) Seminar, three hours; outside study, nine hours. Introductory course with focus on arts education for multiple publics in inner-city settings. Study of core issues in arts education, creativity, and social justice as students develop, implement, and assess original syllabi, lesson plans, and community learning projects for multiple publics in inner-city schools and arts organizations. Collaboration with partner schools in planning, teaching, and evaluation of arts education programs in dance, music, theater, and visual arts. P/NP or letter grading.

**143. Understanding Pathways to College (4)** Lecture, two hours; discussion, two hours. Examination of inequality across K-12 and higher education to understand how college admissions are stratified across racial and class lines. Roles of school personnel, higher education admissions, families, and students in promoting equal educational opportunity. Course is good preparation for students interested in working in UCLA programs such as Early Academic Outreach Programs that serve students in Los Angeles area schools. Letter grading.

**144. Pedagogies of Global Citizenship Education (4)** (Formerly numbered 152C.) Lecture, four hours. Not open for credit to students with credit for course 144XP. Questions regarding nature and possibility of education that can foster global citizenship necessary to understand and resolve world's most pressing issues. Focus on curriculum and instruction of global citizenship education. Using local and global research, exploration and analysis of various perspectives, curricula, and pedagogies pertaining to teaching and implementation of global citizenship education at different levels of education. Letter grading.

**144XP. Pedagogies of Global Citizenship Education (5)** Lecture, three hours; field work, one hour. Requisite: course 180. Not open for credit to students with credit for course 144. Questions regarding nature and possibility of education that can foster global citizenship necessary to understand and resolve world's most pressing issues. Focus on curriculum and instruction of global citizenship education. Using local and global research, exploration and analysis of various perspectives, curricula, and pedagogies pertaining to teaching and implementation of global citizenship education at different levels of education. Letter grading.

**145. Children, Immigration, and Education (4)** Lecture, four hours. Exploration of diverse experiences of young people across globe whose lives have been shaped by movement across geopolitical, social, cultural, and linguistic borders from sociological, anthropological, psychological, public policy, and educational perspectives. Bringing together these multiple epistemological lenses, study addresses issues of identity, citizenship, belonging, growing up in multi- and bilingual communities, learning in and out schools, educational processes and policies, school-family connections, and more. Letter grading.

**146. Critical Perspectives on Educational Assessment Approaches: Pre-Kindergarten to College (4)** Seminar, three hours. Introduction of fundamental concepts and approaches in large-scale and classroom assessment. Brings critical perspectives to assessment design, uses, and interpretations, looking weekly at specific use cases in diverse learning contexts. Letter grading.

**147. Social Context of Learners in K-12: Diversity, Residential Mobility, Immigration, and Food Security Conditions in California (5)** (Formerly numbered 139.) Seminar, four hours. Examination of K-12 student experience in California schools. Comparison of geographic disparity in shared experiences, and prevalence of special and difficulty circumstances that have implications for learning and learning outcomes. Key areas identified include race and ethnic diversity in schools; geographic and residential mobility (including homelessness and temporary/transitional housing placement conditions); migration-schooling nexus (migrant education); and food insecurity conditions in student population. Data-driven, school-level analysis relying on statistics from California Department of Education and Los Angeles Unified School District. Data from other states offers points of comparison with respect to student demographic and geospatial experience across categories explored. Examination of potential impact of differential burden of inequality and disparity in resource opportunity on student learning and learning outcomes. Letter grading.

**148. Early Childhood Development (5)** (Formerly numbered 120.) Seminar, four hours. Broad overview of children's psychological development, with emphasis on personal, social, and emotional attributes of preschool and elementary school children. Review and evaluation of contemporary educational programs for promoting positive social behaviors in elementary schools. Methodological aspects of child development. Overview of early childhood education and issues related to role of family, school, and media in child development. Letter grading.

**149. Variable Topics in Contexts of Teaching and Learning (4)** Seminar, four hours. Variable topics course organized around topics that teach students about theory and research on how people learn as well as sociocultural contexts that shape teaching and learning. Consult Schedule of Classes for topics and instructors. May not be repeated for credit. Letter grading.

**150. Quantitative Research in Education: Claims and Evidence (5)** Lecture, two hours; discussion, two hours. Requisite: course 35. Limited to Education and Social Transformation majors. Introduction to four conceptual tools used to evaluate soundness of conclusions drawn from research evidence: notions of internal validity, statistical validity, construct validity, and external validity. Statistical validity requires basic fluency with quantitative data analysis, which students learn using statistical software R. Analysis of how values and beliefs shape quantitative education research and how research findings get translated when they are reported for popular media audiences. Quantitative background is not required. Letter grading.

**151. Quantitative Research in Education: Measurement and Assessment (5)** Lecture, four hours; discussion, one hour. Enforced requisite: course 35, with grade of C or better. Intended for students who are interested in better understanding what makes good tests and how to critically interpret and evaluate tests and test scores in educational contexts. Introduction to measurement, testing, and assessment in educational settings. Overview of foundational concepts, methods, issues, and practices of educational measurement and assessment. Overview of basic statistical concepts and methods. Highlighting and evaluation of three core concepts of assessment: reliability, validity, and fairness. Students develop ability to critically interpret assessment data and apply both classical and modern theories of measurement and validly measure constructs of interest such as knowledge, attitude, and motivation. Students demonstrate understanding of equity and social justice issues related to fair use of educational measurement and assessment. Letter grading.

**152. Quantitative Research in Education: Regression Analysis (5)** Lecture, two hours; discussion, two hours. Requisite: course 150 or 151. Preparation: basic familiarity with programming language R. Introduction to regression as tool to answer questions about education. Regression is commonly used to answer questions about association claims—relationship between variables—and causal claims—causal effect of one variable on another. Using regression appropriately requires thoughtfulness about what kinds of questions regression can answer, about assumptions regression relies on, about limitations of our data, and about how particular variables (e.g., race and gender) are incorporated into analyses in order to avoid regression results that may be biased and may reify rather than interrogate problematic ideas. Emphasis on learning fundamental concepts of regression analysis and how these concepts can be thoughtfully applied to address different kinds of questions about education. Students are trained how to read and critically assess research and applications using R programming language. Letter grading.

**156. Introduction to Qualitative Research in Education for Social Transformation (5)** Lecture, two hours; discussion, two hours. Requisite: course 35. Limited to Education and Social Transformation majors. Qualitative researchers who focus on education and social transformation often examine social roots of educational inequalities and injustices, and organization of teaching and learning across diverse settings in order to understand educational possibilities. Introduction to epistemological, theoretical, ethical, and political foundations of conducting qualitative research in education. Students become familiar with breadth and scope of qualitative research. Theoretically-grounded, practical orientation that teaches students how qualitative researchers work individually and in teams to design studies that may ultimately support movement toward educational and social change. Assignments guide students through iterative research design process, which includes conducting needs assessment using qualitative data collection tools, making sense of pilot data, and negotiating research plans with stakeholders. Letter grading.

**157. Qualitative Research in Education: Ethnography (5)** Seminar, four hours. Requisite: course 35. Examination of debates and dilemmas of conducting ethnography research in educational settings. Survey of research methodologies and methods (observations and interviews) in ethnography of education research. With consideration to issues of race/ethnicity, gender, sexual orientation, class, language, and immigration status, study guided by central ques-



tion of how ethnography can inform efforts to create more socially-just educational systems and spaces of learning. Designed to help students develop skills important for senior capstone project. Letter grading.

**159. Educational Research and Equity in Informal Learning: Collaboration between Hammer Museum and UCLA Education (5)** Seminar, three hours. Requisites: courses 35, 180. Through collaboration with Hammer Museum, introduction to importance of informal learning contexts, specifically in art museums, and value of conducting educational research within such contexts, while keeping equity at center of inquiry and exploration. Study of art museum pedagogies and philosophies. Reflection on art museum responsibility to support positive learning experiences for diverse audiences and local communities. Exploration of Research-Practice Partnerships education research approach that can support art museums in understanding problems of practice and questions of interest to their communities through mutually beneficial collaboration between researchers and practitioners. This approach challenges more traditional research-practitioner power dynamics by creating opportunities for both to jointly negotiate research questions, methods, and data analysis. Letter grading.

**160. Transformative Research in Community-Based Settings (5)** (Formerly numbered 188A.) Lecture, four hours. Requisites: courses 35, 180. Introduction to the broad tradition of transformative research in education—engaged scholarship that aims to disrupt long-standing educational inequities in partnership with local communities. This tradition includes youth participatory action research (YPAR), participatory design research (PDR), community-based participatory research (CBPR), and other collaborative approaches to inquiry that value diverse forms of expertise and knowledge. By examining the principles and practices that underscore community-engaged scholarship, students are supported in developing the ability to analyze education in social and political context; develop skills for effecting change; and demonstrate understanding of multiple perspectives, diversity, pluralism, and social justice. Letter grading.

**165. Educational Program Evaluation (5)** (Formerly numbered 139.) Seminar, four hours. Requisite: course 35. Stages and methods for conducting evaluations of educational and social programs, with emphasis on evaluation approaches that are theoretically grounded, methodologically rigorous, practical, and useful. Letter grading.

**166. Program Evaluation Theories and Practice (5)** Seminar, four hours. Requisites: courses 10, 35. Introduction to various theories concerning evaluation of educational and social programs. Examination of how these theories differ with respect to goals, priorities, and associated procedures. Development of evaluation plan for specific program. In developing this plan, students consider core features of program, engage program stakeholders to understand needs and priorities, and connect their proposed approach to specific evaluation theories. Through parallel development of multiple plans to evaluate single program, students observe extent and manner in which differences in theory are manifested in evaluation design. Letter grading.

**169. Variable Topics in Inquiry and Design (4)** Seminar, four hours. Requisite: course 35. Variable topics course organized around courses that teach students how to read and communicate about research. Consult Schedule of Classes for topics and instructors. May not be repeated for credit. Letter grading.

**170. Exploration of Topics in Education (2)** (Formerly numbered 184.) Lecture, one hour. Variable topics course, with emphasis on theories of teaching and learning, connecting them to instructional activities for students in various learning settings, including libraries and schools. P/NP grading.

**171. Community Service Learning for Academic Achievement (4)** (Formerly numbered 185.) Lecture, two hours; discussion, two hours. Emphasis on cognitive learning and motivation theories and their relevance to strategies for developing curricular instructional techniques and training that contribute to tutoring, counseling, and other instructional assistance in various school settings. P/NP or letter grading.

**172. Activism through Community Service (5)** Seminar, four hours. Exploration of impact and importance of activism in addressing health, educational, and social disparities that have led to discrimination, segregation, and marginalization of people of color. Students acquire methodology to combat these issues through participating in activism and community service at UCLA to further address issues that minoritized populations experience. Students apply their experiential knowledge from their respective projects in Community Programs Office Student Association, Student Initiated Outreach Center, Community Service Commission, or other UCLA community service organization to provide critiques and solutions to issues they are combating in their respective projects. Letter grading.

**173. Dialog across Difference (4)** Seminar, three hours. Offers safe and inviting space to engage in open, constructive discourse on issues related to social identities, such as race/ethnicity, socio-economic class, and sexual ori-

entation identities. Students learn from one another's perspectives, participate in experiential learning exercises, read and discuss relevant materials, and explore their own and other groups' experiences in various social and institutional contexts. Offers opportunities to appreciate and learn to bridge differences, discover and maximize commonalities, interact with others around controversial issues pertaining to various forms of privilege and oppression, and work to help create social change. Letter grading.

**174A. Experiential Learning in Secondary Classrooms: Health (4)** (Formerly numbered 170C.) Lecture, one hour; fieldwork, four hours. Training and supervised practicum for undergraduate mathematics students interested in teaching in secondary classrooms, including working with 6th- through 12th-grade students in school sites. Focus on health requirements from California Commission on Teacher Credentialing. Experts in field lead discussion of issues related to physical and mental health of students and educators, issues of bullying, and learning theories and practices that engage diverse groups of students in classrooms. Active engagement in reflection on issues in schools in which students work. Letter grading.

**174B. Experiential Learning in Secondary Classrooms: Law (2)** (Formerly numbered 170D.) Lecture, one hour; fieldwork, four hours. Training and supervised practicum for undergraduate mathematics or science students interested in teaching in secondary classrooms, including working with 7th- through 12th-grade students in school sites. Focus on law requirements from California Commission on Teacher Credentialing. Experts in field lead discussion of issues related to legal and ethical concerns of schooling, culture of schools, issues of bullying, building of classroom community, and learning theories and practices that engage diverse groups of students in classrooms. Active engagement in reflection on issues in schools in which students work. Letter grading.

**174C. Experiential Learning in Secondary Classrooms: Technology (2)** (Formerly numbered 170E.) Lecture, one hour; fieldwork, four hours. Training and supervised practicum for undergraduate mathematics students interested in teaching in secondary classrooms, including working with 7th- through 12th-grade students in school sites. Focus on technology requirements from California Commission on Teacher Credentialing. Experts in field lead discussion of issues related to use of technology in classrooms, and learning theories and practices that engage students with diverse needs and interests. Active engagement in reflection on issues in schools in which students work. Letter grading.

**175A. Educational Innovations in Sport and Entertainment in Context of Diversity (4)** Seminar, four hours. Introduction to central issues at nexus of education, sports, entertainment, and diversity. Examination and investigation of recent innovations in education, sports leadership, and entertainment that promise greater representation, equity, and inclusion of marginalized groups. Examination of media role in forming perceptions and attitudes, and its educational force in changing perceptions of athletes, and of college and professional sports. Examination of innovations in education, sports leadership, and entertainment that promote greater diversity. Examination of these and other related issues through prism of relevant theories, recent research literature, and documentaries. Letter grading.

**175B. Educational Leadership and Diversity in Sports: Equity, Access, and Future Prospects (4)** Seminar, three hours. Examination of how leadership of sport, especially within intercollegiate athletics, impacts higher education, businesses, and other related organizations at macro and micro levels. Examination of equity across racial, gender, and social-class lines in both collegiate and professional sports. Addresses access in terms of which institutional mechanisms are in place to cultivate culture that empowers student-athletes, women, and people of color to positively matriculate in terms of social mobility. Approach to evaluating success of various organizations with diverse leaders and participants in sport focuses on both qualitative and quantitative measures. Letter grading.

**175C. Education, Hip-Hop Culture, and Sport (4)** Lecture, three hours. Exploration of intersection of hip-hop culture, sport, and education; and how hip-hop culture serves as instrument of critical and culturally relevant pedagogy in K-12 education, higher education, and informal learning contexts. Exploration of development and rise of hip-hop from underground movement to dominant, cultural phenomenon; and its appropriation by prominent sports personalities. Exploration of hip-hop's connection to television, social media, fashion, art, and film. Exploration of how this cultural art form intersects with development of social identities and cultural learnings in traditional and non-traditional educational settings (e.g., public schools, private schools, charter schools, and home schooling); and its enormous educational impact in general. Exploration of potential of hip-hop music and its cultural art form for furthering culturally relevant pedagogies and learning experiences. Letter grading.

**175D. Education of Contemporary Athletes: Leadership Themes and Principles (4)** Seminar, three hours. Introduction to educational and business themes surrounding leadership in athletics. Emphasis on requisite experiences, knowledge, skills set, and abilities/characteristics for pursuing career in sport team operations; and how this impacts educational experiences of athletes. Study dissects current (mis)perceptions related to careers as general managers or sports agents, and supplies students with actionable plans for career development and advancement. Students learn about potential educational and career impact of impending and passed legislation related to name, image, and likeness rights of contemporary college student-athletes, including detailed discussion and analysis of how California bill fits within overall higher education model at universities such as UCLA. Letter grading.

**176. Transformative Research in Community-Based Settings: Practicum (5)** (Formerly numbered 188B.) Lecture, four hours; fieldwork, one hour. Requisites: courses 35, 160. Introduction to broad tradition of transformative research in education—public scholarship that aims to disrupt long-standing educational inequities in partnership with local communities. This tradition includes Youth Participatory Action Research (YPAR), Community-Based Action Research (CBAR), and other collaborative approaches that value diverse forms of expertise and knowledge. Through variety of community-engaged learning opportunities, students are supported to develop ability to analyze education in social and political context, develop skills for effecting change, demonstrate understanding of multiple perspectives, diversity, pluralism, and social justice. Letter grading.

**177. Creating Safe and Welcoming Schools (4)** (Same as Public Affairs M125.) Lecture, two hours; discussion, one hour. Examination of historical context and causes of school violence, theories, and diverse perceptions of school climate and safety. Special emphasis on impact of school climate on oppressed groups and how social contexts such as poverty and how neighborhood resources influence school safety. Letter grading.

**CM178. Critical Media Literacy and Politics of Gender: Theory and Production (4)** (Same as Gender Studies CM178.) Seminar, three hours. Corequisite: course CM178L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM278. Letter grading.

**CM178L. Critical Media Literacy and Politics of Gender: Laboratory (2)** (Same as Gender Studies CM178L.) Laboratory, two hours. Corequisite: course CM178. Hands-on production experience as integral component of course CM178. Concurrently scheduled with course CM278L. Letter grading.

**180. Orientation to Community Engagement (4)** Seminar, four hours. Limited to Education and Social Transformation majors. Not open for credit to students with credit for course 180W. First course in three-part series to satisfy community engagement requirement for Education and Social Transformation major capstone project. Introduction to conceptions and contexts of community engagement, focusing on possibilities and complexities of critical and asset-based approaches to community engagement. In preparation for students' own community engagement experiences in community organizations, early childhood centers, or schools in Los Angeles, emphasis on reflecting on positionality, identifying forms of power and privilege, and understanding relationships between systemic issues and community engagement. Letter grading.

**180W. Orientation to Community Engagement (5)** Seminar, four hours. Requisite: English Composition 3. Limited to Education and Social Transformation majors. Not open for credit to students with credit for course 180. First course in three-part series to satisfy community engagement requirement for Education and Social Transformation major. Introduction to conceptions and contexts of community engagement, focusing on possibilities and complexities of critical and asset-based approaches to community engagement. In preparation for students' own community engagement experiences, emphasis on reflecting on positionality, identifying forms of power and privilege, and understanding relationships between systemic issues and community engagement. Satisfies Writing II requirement. Letter grading.

**181. Capstone in Education and Social Transformation (5)** Seminar, four hours. Limited to Education and Social Transformation majors. Third course in required capstone sequence for Education and Social Transformation major. Students reflect on their coursework, community engagement experiences, and other curricular and co-curricular opportunities while completing major. Students compile portfolio that incorporates work completed through Education and Social Transformation major curriculum as well as form reflection paper where students synthesize their learning. This includes reflection on their personal development, how coursework and community engagement experience contributed to their fulfillment of learning outcomes for major, and plans for future. Students produce compelling final public presentation of their portfolio. Letter grading.

**187. Variable Topics in Education (5)** Seminar, five hours; discussion, two hours. Limited to juniors/seniors. Variable topics course organized around disciplinary knowledge central to development of core understandings of educational and learning processes, phenomenon, policies, methods, and instruction. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be applied as core credit for Education Studies minor students. May be repeated three times for credit. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**191A. Current Issues in Education (4)** Seminar, four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit. Letter grading.

**191B. Current Issues in Education (4)** Seminar, four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit. Letter grading.

**191C. Current Issues in Education (4)** Seminar, four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit. Letter grading.

**191D. Current Issues in Education (4)** Seminar, four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit. Letter grading.

**C192A. Practicum in Intergroup Dialogue Facilitation (4)** Seminar, three hours. Requisite: course C160. Application and further development of content and skills learned in course C160. In addition to co-facilitating weekly dialogues, students are expected to participate in weekly teaching apprentice practicum seminars. Readings, discussions of group dynamics, and one-on-one meetings with assigned coach. Fosters supportive learning environment where each student facilitator can gain more insight and knowledge into skills of dialogue facilitation and continue process of self-reflection and critical inquiry of own identities, biases, beliefs, and perspectives. Includes learning as large group and time to receive individualized consultation as co-facilitation dyad from instructor. Concurrently scheduled with course C292A. Letter grading.

**195. Community Internships in Education (2 to 4)** Tutorial, one hour; fieldwork, eight to 10 hours. Requisite: course 180. Limited to junior/senior Education and Social Transformation majors. Internship in approved educational or community setting to be supervised by instructor. Students meet biweekly with instructor, write reflective journals, and prepare final paper. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

**195CE. Community or Corporate Internships in Education (4)** Tutorial, one hour; fieldwork, eight to 10 hours. Requisite: course 180. Limited to junior/senior Education and Social Transformation majors. Internship in supervised educational settings coordinated through Center for Community Engagement. Students meet biweekly with graduate student instructor, complete weekly readings and written assignments, and write final research paper or project as agreed upon with instructor. May be repeated for credit with consent of department. Individual contract with supervising faculty member required. P/NP or letter grading.

**196R. Research Apprenticeship in Education (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP or letter grading.

**196XP. Community-Engaged Research Apprenticeship (4)** Tutorial, 12 hours. Requisite: course 180. Recommended: course 160. Limited to junior/senior Education and Social Transformation majors. Research apprenticeship in community setting for upper-division students under guidance of faculty mentor. Faculty advisor must be actively engaged in work of that community and focus of research must address needs of that community. May be repeated for credit. Individual contract required. Letter grading.

**197. Individual Studies in Education (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Education (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Historical Research and Writing (4)** Lecture, four hours. Methods of historical research and writing for students who are or who will be engaged in research and in report or paper or thesis writing, regardless of their field of interest. S/U or letter grading.

**200B. Survey Research Methods in Education (4)** Lecture, four hours. Requisite: course 230A. Problems of conceptualization, organization, and gathering nonexperimental and quasi-experimental quantitative and qualitative data. S/U or letter grading.

**200D. Research Methods: Special Topics (4)** Lecture, four hours. Variable topics in research methods in education. S/U or letter grading.

**201. Variable Topics Seminar: Education. (1 to 4)** Seminar, three hours. Variable topics course organized around themes that explore emerging areas in education including the role of education, education policy, race and ethnic studies, social justice, and the sociocultural contexts that shape the field of education. Consult the Schedule of Classes for topics and instructors. S/U or letter grading.

**201C. History of American Education (4)** (Same as History M264.) Discussion, three hours. History of educational thought and of social forces impinging on American education from 1880s to present. Analysis of relation between these ideas and forces, and aims and practices of American education today. S/U or letter grading.

**202. Evaluation Theory (4)** Lecture, four hours. Prevalent evaluation theories, systems for categorizing these theories, and process of theory development in educational evaluation. S/U or letter grading.

**204A. Introduction to Education and Social Sciences (4)** Lecture, four hours. Interdisciplinary course intended to introduce students to study of educational issues, texts, and movements of thought through social sciences and comparative perspectives. S/U or letter grading.

**204B. Introduction to Comparative Education (4)** Lecture, four hours. Examination of conceptual and methodological questions underlying comparative education. Particular attention to development of field and to styles of social analysis that may be applied to comparative and cross-national studies in education. S/U or letter grading.

**204C. Education and National Development (4)** Lecture, four hours. Designed for graduate students. Analysis of various social sciences perspectives and methodologies (including modernization, dependency, Marxist, neo-Marxist, liberation theology, and world-system theories of change and development) and changing notions of role of education in development of less-industrialized countries of world. S/U or letter grading.

**204D. Minority Education in Cross-Cultural Perspective (4)** Lecture, four hours. Historical and contemporary analyses of educational policies with regard to ethnic, religious, and linguistic minorities through selected national and international case studies. Introduction to cross-cultural education in representative countries in relation to social, political, and economic systems. S/U or letter grading.

**204E. International Efforts in Education (4)** Lecture, four hours. Designed for graduate students. Critical analysis of complex world of development cooperation, with particular reference to bilateral and multilateral efforts in education. S/U or letter grading.

**204F. Nonformal Education in Comparative Perspective (4)** Lecture, four hours. Comparative and international study of organized and systematic educational activity for children, youth, and adults carried on outside of schools. Types of programs include, among others, consciousness raising, community action, skills training, literacy, and extension programs. S/U or letter grading.

**206A. Philosophy of Education: Introduction (4)** Lecture, four hours. Systematic introduction to field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values. S/U or letter grading.

**207. Politics of Education (5)** (Formerly numbered C207.) Lecture, two hours; discussion, two hours. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as foundation for public policy analysis; interest groups in education policy formation and implementation; and focus on Freirean pedagogy. S/U or letter grading.

**208A. Perspectives on Sociology of Education (4)** Lecture, four hours. Sociological perspectives on current issues in educational policy and practice, including desegregation, decentralization, equality of educational opportunity, structure of educational organization, teacher/student relationships, reform in education at elementary, secondary, postsecondary levels. S/U or letter grading.

**208B. (Im)migrant Youth, Ethnography, and Education (4)** Seminar, four hours. Exploration of experiences of immigrant youth in U.S. schools, with focus on language, culture, and educational equity in urban settings. Letter grading.

**209A. History of Higher Education (5)** (Formerly numbered C209A.) Lecture, four hours. Exploration of major eras in history of higher education. Topics include issues concerning access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media. S/U or letter grading.

**209C. Research and Evaluation in Higher Education (4)** Lecture, four hours. Development of conceptual and practical understanding of research and evaluation in higher education. Topics include basic statistics, survey design, data analysis, assessment issues, and research proposal writing. Letter grading.

**211A. Educational and Psychological Measurement: Underlying Theory and Practice (4)** Lecture, four hours. Requisite: course 230A. Measurement theory as applied to educational and psychological testing, with focus primarily on classical test theory, reliability estimation, and test construction and selection. S/U or letter grading.

**211B. Educational and Psychological Measurement: Generalizability Theory (4)** Lecture, four hours. Requisites: courses 230A, 230B, 230C. Basic and advanced topics in use of generalizability theory to address problems in measurement. S/U or letter grading.

**211C. Introduction to Factor Analysis and Item Response Theory (4)** Seminar, three hours. Requisites: course 230B or equivalent, and one course in education measurement (course 200B, 211A, 211B, or equivalent). Introduction to linear factor analysis (FA) and item response theory (IRT) models and their uses in research and assessment. Topics include specification, estimation, evaluation, and interpretation of exploratory and confirmatory models. Students use FA and IRT methods to perform range of basic data analyses. S/U or letter grading.

**212A. Learning and Education (4)** Lecture, four hours. Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction. S/U or letter grading.

**212B. Motivation and Affect in Educative Process (4)** Lecture, four hours. Review of theoretical and empirical literature on motivational factors in school settings and conditions for acquisition of affective outcomes. S/U or letter grading.

**217A. Social Development and Education (4)** Seminar, four hours. Biological and familial, school, and other influences on children; development in context of current research and theoretical models; consideration of theoretical and methodological research on family, peer group, and school; application of developmental theory and research to educational practice. S/U or letter grading.

**217B. Cognitive Development and Education (4)** Lecture, two hours; discussion, two hours. Designed for graduate students. Critical review of theories and research in cognitive development, with focus on work of Piaget and Vygotsky, and relation of this work to issues in educational practice. S/U or letter grading.

**217C. Personality Development and Education (4)** (Same as Psychology M245.) Lecture, four hours. Review of research and theory of critical content areas in personality development that bear on school performance: achievement motivation, self-concept, aggression, sex differences, empathy, and other social behaviors; review of status of emotional behavior in personality theory and development. S/U or letter grading.

**217D. Language Development and Education (4)** Lecture, four hours. Research and theory on how children develop their first language; sociolinguistic and psycholinguistic issues in preschool and primary years; bilingual and dialectal issues. S/U or letter grading.

**217F. Adolescent Development (4)** (Same as Psychology M242G.) Seminar, four hours. Designed for graduate students. Review of recent research on physical, cognitive, social, and psychological development during second decade of life. Topics include pubertal development, changes in parent/adolescent relationships, role of peers, identity development, high-risk behaviors, stress and coping, and school adjustment. Letter grading.

**219. Laboratory: Advanced Topics in Research Methodology (4)** Laboratory, four hours. Provides assistance in design of research and interpretation of data to advanced students from other divisions. Coverage of special topics not included in other courses on research methods. S/U or letter grading.

**220A. Inquiry into Schooling: Organization and Change (4)** Lecture, four hours. Critical analysis of issues in reconstruction of schooling; concepts of function and structure of schooling; organization theory; systems approaches in analysis of organization development and change. S/U or letter grading.

**221. Computer Analyses of Empirical Data in Education (4)** Lecture, two hours; laboratory, two hours. Requisites: courses 209C (section 1), 230A. Designed to develop conceptual and technical skills needed for designing and executing empirical research utilizing statistical packages. Each student conducts two original studies. Equal emphasis on techniques of data analysis and interpretation of results. S/U or letter grading.

**222A. Introduction to Qualitative Methods and Design Issues in Educational Research (4)** Lecture, three hours; discussion, one hour. Introductory course for students interested in epistemology, theories, and styles of qualitative research in educational settings. Theory and practice of naturalistic, qualitative research design covered in second half of course. Letter grading.

**222B. Participant-Observation Field Methods (4)** Lecture, two hours; discussion, two hours. Requisite: course 222A. First of two courses on participant-observation field methods. Key skills (e.g., observation, recording, interviewing, role management, data storage) learned through classroom lectures and simulations, and by conducting actual field-based research project. Letter grading.

**222C. Qualitative Data Reduction and Analysis (4)** Lecture, two hours; discussion, two hours. Requisite: course 222B. Continuation of fieldwork project started in course 222B, with focus on practical skills and conceptual/methodological issues involved in reducing and analyzing qualitative data. Letter grading.

**222D. Qualitative Inquiry: Special Topics (4)** Lecture, four hours. Special topics course on some field or aspect of qualitative inquiry. Topics may include classroom ethnography, advanced ethnographic writing and/or multimedia design, discourse analysis, and microethnography of social interaction. S/U or letter grading.

**223. Procedural Issues in Evaluation (4)** Lecture, four hours. Assessment methodologies appropriate for evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing decision context, and reporting evaluation results. Letter grading.

**224. Leading Change through Evaluation: Methods of Continuous Improvement (4)** Lecture, four hours. Introduction to disciplined inquiry and continuous improvement methods as means for driving change in complex systems. Introduction to organizational learning and change, and adult learning concepts. Focus on disciplined inquiry as strategy to lead change, whether for individuals, teams, or organizations, and its application in education, health care, and other disciplines. S/U or letter grading.

**225A. Issues in Education of Exceptional Individuals (4)** Lecture, four hours. Designed for graduate students. Analysis of major research regarding contemporary trends, issues, and programs for exceptional individuals; consideration of commonalities and differences among exceptional individuals. S/U or letter grading.

**227C. Research on Behavioral and Social Characteristics of Exceptional Individuals (4)** Lecture, four hours. Analysis of social and emotional development of exceptional individuals and development of social competence in special education programs. S/U or letter grading.

**229. Seminar: Special Topics in Urban Schooling (4)** Seminar, four hours. Research on selected topics in fields of administration, policy, curriculum, and teaching studies and on conceptualization of hypotheses and research programs on division topics and issues. Letter grading.

**CM229B. Narratives of Justice: Disrupting School-to-Prison Pipeline—Arts, Activism, and Agency (4)** (Same as African American Studies CM213XP) Lecture, four hours; discussion, one hour. Exploration of policies and practices, art and activism, and other forms of agency engaging school-to-prison pipeline. Concurrently scheduled with course CM125XP. S/U or letter grading.

**230A. Introduction to Research Design and Statistics (4)** Lecture, four hours. Designed for graduate students. Key concepts and issues in design and conduct of social sciences research. Introduction to descriptive statistics and fundamentals of statistical inference. Letter grading.

**230AL. Introduction to Research Design and Statistics: Computer Laboratory (1)** Laboratory, one hour. Corequisite: course 230A. Computer data analysis laboratory for introductory research design and statistics. Instruction in SPSS, STATA, and SAS statistical analysis packages. S/U grading.

**230B. Linear Statistical Models in Social Science Research: Multiple Regression Analysis (4)** Lecture, four hours. Requisite: course 230A or passing score on screening examination. Solid and comprehensive training in regression-based methods for analyzing quantitative social science data. Letter grading.

**230BL. Linear Statistical Models: Computer Laboratory (1)** Laboratory, one hour. Corequisite: course 230B. Computer data analysis laboratory for linear statistical models. Instruction in SPSS, STATA, SAS, and other relevant statistical analysis packages. S/U grading.

**230C. Linear Statistical Models in Social Science Research: Analysis of Designed Experiments (4)** Lecture, four hours. Requisites: courses 230A, 230B. Solid and comprehensive training in experimental design and analysis methods, especially use of analysis of variance methods. S/U or letter grading.

**230CL. Linear Statistical Models for Experimental Research: Computer Laboratory (1)** Laboratory, one hour. Corequisite: course 230C. Computer data analysis laboratory for linear statistical models for experimental research. Instruction in SPSS and SAS statistical analysis packages. S/U grading.

**231A. Toolkit for Quantitative Methods Research (4)** Lecture, four hours. Requisites: courses 230A, 230B, 230C. Elementary probability. Working knowledge with calculus. Mathematical and statistical results useful for advanced quantitative methodology research. Matrix algebra. Random vectors. Multivariate distribution theory. Likelihood and Bayesian estimation and inference. Linear and generalized linear models. Simulation. S/U or letter grading.

**231B. Factor Analysis (4)** (Same as Psychology M253.) Lecture, four hours. Requisites: courses 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis. S/U or letter grading.

**231BL. Factor Analysis: Computer Laboratory (1)** Laboratory, one hour. Corequisite: course M231B. Computer data analysis laboratory for exploratory and confirmatory factor analysis. Instruction in CEFA, LISREL, and other relevant statistical analysis packages. S/U grading.

**231C. Advanced Item Response Theory (4)** (Formerly numbered 211C.) Lecture, four hours. Requisites: courses 231A, M231B. Review of standard item response theory models, multidimensional models, multiple group models and models with covariates, item and person parameter estimation, differential item functioning analysis, testing model fit, linking and scale alignment, computerized adaptive testing. S/U or letter grading.

**231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis (4)** Lecture, four hours. Requisites: courses 230B, 230C. Examination of conceptual, substantive, and methodological issues in analyzing multi-level data (i.e., on individuals in organizational settings such as schools, corporations, hospitals, communities); consideration of alternative analytical models. Letter grading.

**231E. Statistical Analysis with Latent Variables (4)** (Same as Statistics M244.) Lecture, three hours. Requisites: courses 231A, M231B. Introduction to general latent variable modeling framework. Important special cases of this framework include confirmatory factor analysis, structural equation models, item response models, latent class models, and multilevel models, among others. Topics include discussions of general statistical and computational framework, model formulation, identification, estimation, and testing. Letter grading.

**233. Professional Writing in Education (4)** Lecture, four hours. Intended to assist in professional development as writers, with focus on style and organization, scholarly genres, modes of discourse, and broader issues of conceptualization and method. Letter grading.

**234. Critical Perspectives on Economic Approaches to Education (4)** Seminar, four hours. Introduction to concepts and principles in economics of education using critical perspective. Overview of evolving relationship between education and economics, including growing use of education as economic policy tool and increased role of economic principles in internal functioning of educational systems. S/U or letter grading.

**235. Comparative Political Economy of Education and Skills (4)** Seminar, four hours. Use of political economy of education perspective for exploring, at international and comparative levels, link between alternative models of governing, providing and financing education and training systems and impact of alternatives on outcomes such as unequal chances to learn, types of skill formation, and well-being. S/U or letter grading.

**237. Law and Urban Education (4)** Lecture, four hours. Examination of recent legal controversies that may impact ability of urban educators to meet needs of students in multicultural society, with special emphasis on such equity-related issues as desegregation, school finance, standardized testing, and rights of language minority students. Letter grading.

**238. Cross-National Analysis of Higher Education (4)** Lecture, four hours. Comparative study of national systems of higher education: their division of work, basic values, structures of authority, modes of national integration, and types of change. S/U or letter grading.

**240. Immigrant Children and Education (4)** Seminar, four hours. Examination of immigrant child and youth experience, with primary focus on educational outcomes. Topics include historical changes in experiences of immigrant youth, dynamics of immigrant families, cultural, ethnic, and socioeconomic status-related influences in immigrant youths' adjustment, and school-family connections. Letter grading.

**241. Conceptual Frameworks for Research in Urban Education (4)** Seminar, four hours. Examination of diverse set of foundational theories for educational researchers concerned with understanding, designing, and studying transformative, culturally sustaining, and democratic educational practices. Includes both founding parents and neo perspectives in emancipatory/liberatory pedagogy, sociocultural/sociohistorical activity theory, critical race theory, cultural modeling/culturally sustaining pedagogy and contributions from learning sciences, indigenous, post-colonial, sociological, political-economic, and anthropological approaches to educational research. Attends both to original ideas and how they have changed over time, as well as how faculty in the Urban Schooling program draw on these frameworks for their research. Letter grading.

**242. Learning, Culture, and Schooling (4)** Seminar, four hours. Education typically refers to explicit efforts by experienced members of society to instruct new members in acceptable ways of thinking and acting in that society. Study of how learning sciences—broadly, social sciences interested in study of learning, with particular focus on variants of psychology—attempt to explain human cognitive development, and how people learn to think and act. Investigation of how accounts of learning and development can be, and have been, used to inform instruction in school. Focus on schools primarily as means to examine how theoretical perspectives on learning can inform praxis and scholarship or educational justice and equity. Letter grading.

**243. Reflection on Methods in Social Sciences (4)** Lecture, four hours. Preparation: two research methods courses. Fundamental issues surrounding use of methods in social sciences, including issues in philosophy of social sciences, relationship between theory and facts, ontological status of constructs, cognition and social research, sources of evidence in ethnography, research and social policy. Letter grading.

**C244. Theory and Practice of Intergroup Dialogue: Building Facilitation Skills (4)** Seminar, four hours. Topics include social psychology of intergroup relations, intercultural and dialogic communication theories, methods for reconciling and bridging differences in schools and communities, research and evaluation of intergroup dialogues and other educational methods for improving intergroup relations, and core competencies for planning, delivering, and evaluating intergroup dialogues in multicultural settings. While providing foundational grounding in theory and pedagogy of intergroup dialogue, particular attention to relationships between intergroup dynamics, structural inequalities, systems of privilege and oppression, and mental health outcomes and disparities among populations. Concurrently scheduled with course C124. Letter grading.

**246A. Decision Analysis and Advanced Computer Methods for Educational Policy and Planning (4)** Seminar, four hours. How information technology and decision analysis impact K-12 schooling, higher education, and technical training/workplace settings. With research paper, oral presentation, and two research briefs, students can pursue decision analysis areas of special interest to their professional and career objectives. S/U or letter grading.

**248. Seminar: Special Topics in Child Development and Education (4)** Seminar, four hours. Content varies; limits of investigation set by individual instructor. S/U or letter grading.

**249. Theories and Methods in Developmental Science (4)** Lecture, three hours. Broad overview of theories and methods used to study development of children in context. Introduction to foundational theories in field of develop-

mental science, and exposure to range of methodological approaches—ranging from sources of data to analytic approaches—that researchers use to characterize developmental change. S/U or letter grading.

**250A. Fundamentals of U.S Higher Education System (4)** Lecture, four hours. Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute this division, with emphasis on underlying social and political issues that shape higher education and organizational change. Letter grading.

**250B. Organizational Analysis of Higher Education (4)** Lecture, four hours. Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute this division, with emphasis on underlying social and political issues that shape higher education and organizational change. Letter grading.

**250C. Theoretical Frameworks of Higher Education (4)** Lecture, four hours. Designed for graduate students. Overview of various social sciences theories used to analyze institutions and issues of contemporary higher education. Explanation of how theory and methodology affect research design and framing of research questions in studies of higher education. Letter grading.

**252B. Educational Enterprise (4)** Lecture, two hours; discussion, two hours. Requisite: course 252A. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education, with focus on educational environments, organizations, and curriculum and instruction. Letter grading.

**253A. Seminar: Current Problems in Comparative Education (4)** (Same as Gender Studies M253A.) Seminar, four hours. Examination of some of most influential critical theorists, including Marx, Nietzsche, Freud, Marcuse, Foucault, Fanon, and de Beauvoir and their contributions to critique of contemporary education, society, and politics. S/U or letter grading.

**253B. Seminar: African Education (4)** Seminar, four hours. Designed for graduate students. Contemporary issues in African educational systems, including questions of access and equity, quality and efficiency, relevance and responsiveness, links between schools and communities, and policy and practice in education. S/U or letter grading.

**253C. Seminar: Asian Education (4)** Seminar, four hours. S/U or letter grading.

**253D. Seminar: Latin American Education (4)** Seminar, four hours. S/U or letter grading.

**253G. Seminar: Asian Americans and Education (4)** Seminar, four hours. Basic issues and topics related to Asian Americans in field of education. Examples of issues and topics include Asian Americans and community, socioeconomic status, education-to-work transition, language and culture question. S/U or letter grading.

**253H. Seminar: Chicanos/Hispanics and Education (4)** Seminar, four hours. Basic issues and topics related to Chicanos and other Hispanic groups in education. Review of literature on specific educational levels and Chicano/Hispanic student progress (e.g., early childhood, elementary, higher education; specific topics: assessment, access, tracking, segregation; implications for schooling). S/U or letter grading.

**253I. Education and Social Change in Middle East and Islamic World (4)** Seminar, four hours. Critical and analytic examination of historical and current role of traditional and modern (Western) education in affecting social, political, and economic changes in countries of Middle East and Islamic world (including Pacific Rim, South and Central Asia). S/U or letter grading.

**254. Seminar: History of Education (4)** Seminar, four hours. Requisite: course M201C. Study of current movements in historiography of education and critical reading of texts in history of education. S/U or letter grading.

**255A. Seminar: Special Topics—Measurement (4)** Seminar, four hours. May be repeated for credit. S/U or letter grading.

**255B. Seminar: Special Topics—Design (4)** Seminar, four hours. May be repeated for credit. S/U or letter grading.

**255C. Seminar: Special Topics—Data Analysis (4)** Seminar, four hours. May be repeated for credit. S/U or letter grading.

**256A. Seminar: Special Topics in School Learning (4)** Seminar, four hours. S/U or letter grading.

**256B. Seminar: Special Topics in Development (4)** Seminar, four hours. S/U or letter grading.

**259. Administration of International Programs in Higher Education (4)** Seminar, four hours. Introduction to theory and practice of internationalization in U.S. higher education, looking at meaning of concept of comprehensive internationalization across campus, issues of effective leadership and management, and individual aspects of internationalization, including study abroad program development and implementation, international student recruitment and support services, international curriculum—area and language studies,

English as a second language programs, international internships and careers, faculty development in international travel and research, international partnerships/branch campuses, international development and grant projects, international alumni, distance learning/massive open online courses (MOOCs)/hybrid models. Letter grading.

**260A. Introduction to Programming and Data Management (4)** (Formerly numbered 260A.) (Same as Public Policy M276A.) Lecture, three hours. Fundamental skills of data management. Development of strong foundation in R programming language. R is most popular language for statistical analysis and one of most popular languages for data science applications (e.g., web-scraping, interactive maps, network analysis). Students become proficient in data management and R programming through weekly problem sets, completed in groups. No prior experience with R required. S/U or letter grading.

**260B. Fundamentals of Programming (4)** (Formerly numbered 260B.) (Same as Public Policy M276B.) Lecture, three hours. Recommended prerequisite: course M260A. Second course in programming/data science sequence designed for students who do not have programming background. Uses primarily R programming language. Organized around practical programming skills/concepts that are fundamental across modern object-oriented programming languages (e.g., Python, Javascript). Topics include organizing files, folders, and scripts; reading (importing) and writing (exporting) data; using Git and GitHub for version control and collaboration; iteration (e.g., loops); conditional execution; writing functions; strings and regular expressions. These general programming skills are prerequisite for flashier data science applications (e.g., web-scraping, interactive maps). Students become proficient in programming skills/concepts through weekly problem sets, completed in groups. S/U or letter grading.

**261E. Higher Education Seminar: Diversity Issues and Research Perspectives (4)** Seminar, four hours. Examination of how racial diversity and its related dynamics have transformed and at same time been reshaped by institutions of higher education, with focus specifically on student experiences, curricula, institutional climate, educational policies, and administrative practices. Letter grading.

**261F. Seminar: Cognitive and Personal Development of College Students (4)** Seminar, four hours. Examination of cognitive development of college students; issues of personal and social development, including leadership, and interpersonal relations and skills. S/U or letter grading.

**262B. Seminar: Reading (4)** Seminar, four hours. S/U or letter grading.

**263. Seminar: Higher Education (4)** Seminar, four hours. May be repeated for credit. S/U or letter grading.

**264. Seminar: Teacher Education (4)** Seminar, four hours. Research, issues, and practices in preservice and in-service teacher preparation, evaluation, and certification. Social, philosophical, and methodological issues and current trends in America and abroad. Opportunities to observe, participate in, and discuss teacher education programs. S/U or letter grading.

**265. Higher Education Policy (4)** Lecture, four hours. Requisites: courses 250A, 250B. Understanding public policy for higher education requires understanding of both issues and policy process. Review of major topics on which U.S. government is active, as well as key actors and their influence. Letter grading.

**266. Feminist Theory and Social Sciences Research (4)** (Same as Gender Studies M266.) Lecture, four hours. Examination of how diverse feminist social theories of last quarter century have both challenged and strengthened conventional social sciences theories and their methodologies. Introduction especially to feminist standpoint theory, distinctive critical theory methodology now widely used in social sciences. Letter grading.

**270. Introduction to Cultural Studies (4)** Lecture, four hours. Investigation of current trends in cultural studies through examination of different methods of cultural interpretation, seminal texts in cultural studies, and practical criticism engaging popular artifacts of media culture. Emphasis on developing critical media literacy as goal of cultural studies. Letter grading.

**272. Case-Study Research in Education Policy and Practice (4)** Discussion, four hours. Use of case-study methods in education research, providing opportunities for applying methodological skills to actual case-study research projects. Focus on single and multiple case studies that investigate issues in education policy and practice. Letter grading.

**274. Science, Technology, and Social Research after Eurocentrism (4)** Lecture, four hours. Philosophy of natural sciences for social scientists that examines challenges to conventional research assumptions raised by multicultural and postcolonial science and technology studies that have emerged since World War II. Focus on sciences and technologies in third-world development projects, comparative ethnoscience movements, and new theories of knowledge and how to do maximally objective research emerging from these literatures. Letter grading.

**275. Race and Education (4)** Seminar, four hours. Limited to graduate students. Examination of role of race in educational policymaking. Exploration of broad interpretation of how schools contribute to racial stratification and inequality by linking sociological and sociopsychological theories of race, racial attitudes, and conflict to historical policy analysis. Letter grading.

**CM278. Critical Media Literacy and Politics of Gender: Theory and Production (4)** (Same as Gender Studies CM278.) Seminar, three hours. Corequisite: course CM278L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM178. Letter grading.

**CM278L. Critical Media Literacy and Politics of Gender: Laboratory (2)** (Same as Gender Studies CM278L.) Laboratory, two hours. Corequisite: course CM278. Hands-on production experience as integral component of course CM278. Concurrently scheduled with course CM178L. Letter grading.

**280A. Seminar: Selected Topics in Special Education. (2 to 6)** Seminar, two to six hours. Focus on research and clinical problems in special education. Introduction to range of clinical services and research strategies. Exploration of current topics in field. S/U or letter grading.

**281. College Access Seminar (4)** Seminar, two hours; discussion, two hours. Knowledge of changing dynamics of college access at individual, organizational, and field levels and understanding of links between K-12 and postsecondary stratification and how educational advantage and disadvantage accumulates throughout education and affects equity in college access. Letter grading.

**284. Critical Theory in Education: Power, Politics, and Liberation (4)** Lecture, four hours. Designed for graduate students. Introduction to major themes, issues, and methodologies within what has come to be known as critical and educational tradition, including some major theoretical writings in liberal, neo-Marxist, left liberal/postmodernist, and Marxist subfields of critical education tradition. Letter grading.

**285. Education and Law (4)** Lecture, four hours. Examination of recent high-profile, education-related disputes at both K-12 and higher education levels. Exploration of topics including campus safety and privacy, student freedom of expression, technology-related issues and concerns, religion in schools, cyberbullying, and accountability for off-campus behavior. Examination of access to quality education by analyzing disputes arising at every stage of education process, from issues regarding practices that may engender school-to-prison pipeline to ongoing legal battles regarding race-conscious policies, Every Student Succeeds Act, K-12 teacher tenure, school sports, unmet needs of English language learners, misuse of special education system, impact of burgeoning charter school movement, and rights of undocumented students. Concurrently taught with Law 282. Letter grading.

**286. Language, Culture, and Education (4)** (Same as Anthropology M256.) Seminar, three hours. Examination of ongoing movement to reclaim and re-imagine schooling as site to sustain indigenous, Black, Latinx, Asian and Pacific Islander communities, including ways these identities/memberships intersect with gender identity and expression, sexuality, disability, language, migration, place, class, and more. For centuries of teaching and learning, communities have sought to push against ways nation-state schools have devalued communities, their lifeways, and their lives. Most recently, this movement is indebted to several decades of research, theory, and practice in asset or strength-based pedagogy tradition. Work on culturally sustaining pedagogy (CSP) has joined these decades (and centuries) of work to offer vision of school that seeks to perpetuate and foster—to sustain—linguistic, literate, and cultural pluralism as part of schooling for positive social transformation and revitalization. S/U or letter grading.

**287. Research on Language Issues in Education (4)** Seminar, four hours. Roles of language(s) in formal and informal education, including study of opportunities and challenges offered by language variation found in schools. Examination of language acquisition theories along with those of language ideologies, language policies, and multilingualism. Letter grading.

**288. Research Apprenticeship Course (2)** Discussion, two hours. Course facilitates mentorship model of training PhD students in education, with focus on development of graduate student research topics. Assignment of common readings related to these topics; students have opportunity to offer and receive feedback. May be repeated for credit. S/U grading.

**C292A. Practicum in Intergroup Dialogue Facilitation (4)** Seminar, three hours. Requisite: course C244. Application and further development of content and skills learned in course C244. In addition to co-facilitating weekly dialogues, students are expected to participate in weekly teaching apprentice practicum seminars. Readings, discussions of group dynamics, and one-on-one meetings with assigned coach. Fosters supportive learning environment where each student facilitator can gain more insight and knowledge into skills

of dialogue facilitation and continue process of self-reflection and critical inquiry of own identities, biases, beliefs, and perspectives. Includes learning as large group and time to receive individualized consultation as co-facilitation dyad from instructor. Concurrently scheduled with course C192A. Letter grading.

**295. Freire (4)** Seminar, four hours. Analysis of intellectual production of Paulo Freire linked to social context in which it took place. Study of his life and work in five phases: Brazilian Experience (1921 to 1964); Chilean Experience, where he published *Education as Practice of Freedom* and *Pedagogy of Oppressed*, as well as other lesser-known works, while also devoting most of this period to empirical research in literacy training (1964 to 1969); his work at Harvard, and then World Council of Churches in Geneva (1970 to 1980), including his consulting with postcolonial revolutionary governments in Africa; his return to Brazil and his work as Secretary of Education in São Paulo (1989 to 1992); and his global travels from 1980 until his death in 1997. Focus on work left incomplete before his death (including eco-pedagogy and citizen's schools), and by implication his analyses, critiques, and impact in world, his methodology of generative word, and comparisons with other theoretical referents. Letter grading.

**296A. Seminar: Research Topics in Education (2)** Seminar, three hours. Advanced study and analysis of current topics in education. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296B. Seminar: Research Topics in Education (2)** Seminar, three hours. Advanced study and analysis of current topics in education. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296C. Seminar: Research Topics in Education (2)** Seminar, three hours. Advanced study and analysis of current topics in education. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296D. Seminar: Research Topics in Education (2)** Seminar, three hours. Advanced study and analysis of current topics in education. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296G. Research Topics in Education: Legal Aspects of Educational Management (2)** Lecture, two hours. Examination and analysis of legal issues, especially as they apply to school organizations. Letter grading.

**296H. Research Topics in Education: Organizational Theory (2)** Lecture, two hours. Examination and analysis of organizational theories, especially as they apply to school organizations. Letter grading.

**296I. Theory in Educational Inquiry (2)** Seminar, two hours. Theory and its application to study of educational settings and institutions. Examination of major paradigms, important schools of thought, and particular theoretical areas and theories within field of education, with focus both on conceptually and empirically based works as means for grounding discussions of theory and application. Letter grading.

**296J. Introduction to Survey Research Methods (2)** Seminar, two hours. Introduction to conceptual and methodological issues involved in survey-based research in education, offering structured opportunity to practice various practical aspects of survey (instrument) development. Questionnaire design, format, and delivery; question writing, pretesting, and testing; and sample design and considerations, nonresponse, measurement error, and data preparation. Letter grading.

**296K. Research Design (2)** Seminar, two hours. Effective educational leaders require ability to accurately diagnose educational problems before jumping to proposed solutions. Study designs must include systematic ways to collect and analyze data, as well as minimize potential threats to validity of data and analysis. Designed to equip students with tools needed to design research studies that address specific real-world educational problems. Basic understanding of research designs as strategies for investigating educational problems, such as types of questions that can be answered appropriately with qualitative and mixed methods studies, design components, planning for fieldwork and data collection, sampling, ethics, and credibility. Letter grading.

**298A. Introduction to Master's Research in Education (4)** Seminar, three hours. Introduction and survey of pedagogies, theories, research, policies, and paradigms in education, specifically centering on a broad range of topical issues concerned with the relationships between social justice and education within self (cognitive, social, emotional), local, national, and international contexts. Through applied emphasis, offers guidance and techniques in writing and research to support the successful completion of division-specific culminating examination projects. Letter grading.

**298B. Research Capstone I: Project Development (4)** Seminar, three hours. Supports students in the development and implementation of the research capstone project. and Deeper exploration of issues concerned with the relationships between social justice and education within self (cognitive, social, emotional), local, national, and international contexts. Letter grading.

**298C. Research Capstone II: Analyses, Interpretation, and Project (4)** Seminar, three hours. Analysis and interpretation of data and findings. Completion of the research capstone project to be presented as part of final culminating project. Letter grading.

**299A. Research Practicum: Education (4)** Clinical, to be arranged. May be repeated for credit. Letter grading.

**299B. Research Practicum: Education (4)** Clinical, to be arranged. May be repeated for credit. Letter grading.

**299C. Research Practicum: Education (4)** Clinical, to be arranged. May be repeated for credit. Letter grading.

**301. Introduction to Information and Presentation Tools (2)** Laboratory, two hours. Limited to credential program students. Sequence of laboratory sessions providing preservice teachers with introduction to education technology infrastructure and classroom presentation tools. Introduction to resources and services, e-mail functions and Internet, and presentation software and multimedia elements. S/U grading.

**305. Health Education for Teachers (2)** Lecture, two hours. Limited to Teacher Education Program students. Teaching/learning process as applied to personal and community health. Topics include psychoactive drugs (alcohol, tobacco, and narcotics), human sexuality, nutrition, community health resources, and analysis of state's health framework. S/U grading.

**309. Methodologies for English Language Learners (2)** Laboratory, two hours. Limited to credential program students. Pedagogy for bilingual and English language learners. Discussion of competencies needed by all content area teachers of English language, including strategies for teaching in and through English. Topics include educational issues, organizational approaches, and communicative approach; strategies and activities. Letter grading.

**315. Principles and Methods for Teaching Reading for Multiple Subject Instruction (3)** Lecture, three hours. Reading instruction in elementary schools. Analysis of reading problems and programs; study of relationships between language/culture/cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. Letter grading.

**315B. Elementary Literacy Methods (3)** Seminar, three hours. Theoretical principles and pedagogical strategies necessary for developing and maintaining balanced comprehensive literacy program for elementary students. Examination of how children learn to read, write, and use language. Letter grading.

**318A. Integrated Methods for Elementary Teachers (3)** Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas. Aligned with California state frameworks and California content standards for grades K-12 that address needs and interests of diverse students. Letter grading.

**318B. Integrated Methods for Elementary Teachers (4)** Lecture, four hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and interests of diverse students. Letter grading.

**318C. Integrated Methods for Elementary Teachers (3)** Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Aligned with California state frameworks and California content standards. Letter grading.

**319. Mathematics Methods (3)** Lecture, three hours. Details of children's mathematics thinking and use of that information as way to ground learning about teaching of mathematics. Letter grading.

**320A. Secondary Content and Literacy Methods (4)** Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching content in grades 7-12. Emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses are aligned with California state frameworks and California content



standards for grades K-12, including English Language Development Standards—all of which address needs and various interests of diverse students. Letter grading.

**320B. Secondary Content and Literacy Methods (3)** Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching content in grades 7-12. Emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses are aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and various interests of diverse students. Letter grading.

**320C. Secondary Content and Literacy Methods (3)** Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching content in grades 7-12. Emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses are aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and various interests of diverse students. Letter grading.

**321A. Secondary Content and Literacy Methods in Ethnic Studies (3)** Lecture, three hours. Examination and development of instructional programs, analyses, and practices of instructional methods for teaching ethnic studies in grades 7 through 12, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses align with California state frameworks and California content standards for grades K through 12, including English Language Development Standards—all of which address needs and various interests of diverse students. Ethnic studies curriculum focuses on Chicano studies, African American/Black studies, indigenous studies, Asian American studies, and gender/sexuality studies and how to develop curriculum focused on local histories in urban classrooms. Letter grading.

**321B. Ethnic Studies Curriculum Development (3)** Lecture, three hours. Examination and development of theoretical frameworks around curriculum development for ethnic studies in grades 7 through 12, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses align with California state frameworks and California content standards for grades K through 12, including English Language Development Standards—all of which address needs and various interests of diverse students. Ethnic studies curriculum focuses on Chicano studies, African American/Black studies, indigenous studies, Asian American studies, gender/sexuality studies, and how to develop curriculum focused on local histories in Los Angeles urban classrooms. Letter grading.

**328. Principles and Methods for Teaching Mandarin Effectively (2 to 6)** Lecture, two to six hours. Emphasis on proficiency-based foreign language teaching methods incorporating language assessment skills, modeling, hands-on experiences, and development of teaching and teacher-training materials. S/U grading.

**330A. Observation and Participation (2 to 6)** Site-based fieldwork, 10 to 15 hours. Students are assigned to school sites with racially, culturally, and linguistically diverse student populations. Throughout observation and participation period, students analyze effective strategies for achieving learning for all students, including sociocultural approaches and appropriate use of educational technology. S/U grading.

**330B. Student Teaching (4 to 8)** Site-based fieldwork, 10 to 20 hours. Requirement: course 330A. Students are assigned to student teach in designated school sites with racially, culturally, and linguistically diverse student populations. Throughout student teaching period, students as novice teachers plan, implement, and assess daily lessons and units, as well as actively engage in reflecting on issues specific to school/community relations. S/U grading.

**330C. Student Teaching (4 to 8)** Site-based fieldwork, 10 to 30 hours. Requirement: course 330A. Students are assigned to student teach in designated school sites with racially, culturally, and linguistically diverse student populations. Throughout student teaching period, students as novice teachers plan, implement, and assess daily lessons and units, as well as actively engage in reflecting on issues specific to school/community relations. Increased daily responsibilities. S/U grading.

**330D. Classroom Residency and Teaching (4)** Site-based fieldwork, 40 hours. Students are employed by local school districts to teach as residents in designated school sites with racially, culturally, and linguistically diverse student populations. Students also work in collaborative teams through Teacher Education Program to initiate change project in their local school and/or complete case study on project. S/U grading.

**360A. Novice Seminar (2)** Seminar, two hours. Analysis of basic principles and concepts of planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of constructivist strategies and their application in elementary and secondary schools. Examination of different methods of computer literacy and teaching subject matter. Students may conduct ethnographic inquiry of local community of their designated partnership district. May be repeated for credit. S/U grading.

**360B. Novice Seminar (2)** Seminar, two hours. Analysis of basic principles and concepts of planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of constructivist strategies and their application in elementary and secondary schools. Examination of different methods of computer literacy and teaching subject matter. Students may conduct ethnographic inquiry of local community of their designated partnership district. May be repeated for credit. S/U grading.

**360C. Novice Seminar (2)** Seminar, two hours. Analysis of basic principles and concepts of planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of constructivist strategies and their application in elementary and secondary schools. Examination of different methods of computer literacy and teaching subject matter. Students may conduct ethnographic inquiry of local community of their designated partnership district. May be repeated for credit. S/U grading.

**390A. Colloquium Series: Human Development and Psychology (1)** Seminar, one hour. Required of first-, second-, and third-year Human Development and Psychology (HDP) PhD students. Training to conduct research that has practical implications as well as theoretical significance within field of applied human development. Children's cognitive, language, personality, and social development in educationally relevant settings such as schools and daycare programs. Series unites scholars exploring contemporary issues in applied human development and provides framework to facilitate research and training in human development within school and UCLA community, as well as forum to share information with other investigators and institutions. May be repeated for credit. S/U grading.

**390B. Colloquium Series: Human Development and Psychology (1)** Seminar, one hour. Required of first-, second-, and third-year Human Development and Psychology (HDP) PhD students. Training to conduct research that has practical implications as well as theoretical significance within field of applied human development. Children's cognitive, language, personality, and social development in educationally relevant settings such as schools and daycare programs. Series unites scholars exploring contemporary issues in applied human development and provides framework to facilitate research and training in human development within school and UCLA community, as well as forum to share information with other investigators and institutions. May be repeated for credit. S/U grading.

**390C. Colloquium Series: Human Development and Psychology (1)** Seminar, one hour. Required of first-, second-, and third-year Human Development and Psychology (HDP) PhD students. Training to conduct research that has practical implications as well as theoretical significance within field of applied human development. Children's cognitive, language, personality, and social development in educationally relevant settings such as schools and daycare programs. Series unites scholars exploring contemporary issues in applied human development and provides framework to facilitate research and training in human development within school and UCLA community, as well as forum to share information with other investigators and institutions. May be repeated for credit. S/U grading.

**402. Curriculum Principles and Practices (4)** Lecture, four hours. Critical analysis of major concepts, underlying assumptions, policy issues, and processes in development and implementation of curriculum in educational setting. Problems in formulation of purposes, selection of learning experiences, organization of curriculum, and curriculum evaluation. S/U or letter grading.

**403. Infant-Toddler Child Development and Care (4)** Lecture, four hours. Exploration of infant and toddler development (ages 0 to 3) and implications of development on their care and education. Introduction to major theories in child development, developmental milestones, and recent brain development research. Topics include family engagement, inclusion, risk contexts, developmentally appropriate practices, and assessment. S/U or letter grading.

**405A. Teaching in Urban Schools: Exploring Communities (2)** Seminar, two hours. Limited to credential program students. Learning about urban communities by critically examining students' own beliefs, assumptions, and experiences about them to deepen understanding and appreciation about urban communities. Letter grading.

**405B. Teaching in Urban Schools: Exploring Identities (2)** Seminar, two hours. Limited to credential program students. Examination and reflection on student values, beliefs, assumptions, and lives to determine how these factors

shape way students view their world and, in particular, teaching, learning, students, their families, and their neighborhoods and communities. Letter grading.

**405C. Teaching in Urban Schools: Exploring Family-School Connections (2)**

Seminar, two hours. Limited to credential program students. Exploration of interrelationships among families, communities, and school systems, engaging parents, caregivers, guardians, students, and school personnel to develop strategies for working with families and to develop philosophy of education. Letter grading.

**406. Social Foundations and Cultural Diversity in American Education (3)**

Lecture, three hours. Intensive consideration of American society, particularly its racial and cultural diversity. Topics include historical development of American society, manifestations of cultures, and ways to learn about students' cultures. Examination of issues of racism, ethnic and gender differences, perspectives of cultural diversity, and impact on educational and classroom instruction. Letter grading.

**406B. Social Foundations and Cultural Diversity in American Education: Ethnic Studies Emphasis (3)** Lecture, three hours. Historical, social, political, and economic contexts of schooling in U.S., with special emphasis on perspectives and contributions from ethnic studies. Examination of central arguments centered around systemic processes, deficit-framing, meanings produced in cultural contexts, and agency and activism. Letter grading.

**407. Psychological Foundations of Education (3)** Lecture, three hours. Analysis of learning processes in school situations. Processes of human motivation, affective, cognitive, social, and personal development of children and adolescents, evaluation of learning, individual differences, and implications of relevant theory and research. Letter grading.

**409. Language Structure, Acquisition, and Development (3)** Lecture, three hours. Theoretical foundations of language structure and first and second language acquisition, with focus on major themes of current research that provide framework for schooling of English language learners. Rationale for bilingual/English language acquisition and development programs. Historical and current theories and models of language. Letter grading.

**411. Procedural Issues in Evaluation (4)** Lecture, four hours. Assessment methodologies appropriate for evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing decision context, and reporting evaluation results. Letter grading.

**412. Why Research Matters to Student Affairs Practice. (3, 4)** Lecture, three hours. How do researchers study impact of college on students? How can that research be used to improve student affairs practice? Introduction to world of college impact research and orientation to major ongoing studies conducted at UCLA and beyond. Students interact with researchers and provide input on how research results might be utilized to improve work of student affairs. Letter grading.

**413A. Language and Culture. (2 to 4)** Lecture, two hours. Limited to credential program students. Offered and required for Bilingual Authorization Programs. Focus on language of emphasis for bilingual teachers. Practice in listening, reading, speaking, and writing competencies required for bilingual classrooms. Assessment made at end of course to determine proficiency of Bilingual Authorization Program candidates. Letter grading.

**413B. Methodology for Bilingual Instruction. (2 to 4)** Lecture, three hours. Offered and required for Bilingual Authorization Programs. Consideration of models for developing cultural and language skills of home speakers of language of emphasis; practice in use of activities to develop student ability to use language for real-world and academic purposes in culturally appropriate ways. Consideration of models for teaching academic content in primary language for delivery of core curriculum to bilingual students. Letter grading.

**413C. History and Culture of Emphasis. (2 to 4)** Lecture, three hours. Offered and required for Bilingual Authorization Programs. Conducted in language of authorization. Discussion of commonalities of culture of emphasis in its home country or countries; major historical periods and events; values, belief systems, and expectations; migration and immigration; historical and contemporary demography. Letter grading.

**414A. Student Affairs Practice and Theory (3)** Lecture, two hours; discussion, two hours. Examination of needs for student affairs services, range of services, their philosophical and empirical rationale, and their organization and evaluation to provide knowledge base for developing theories of practice. Ongoing involvement in cooperative learning project to examine these issues both as team members and as individuals. Offered in summer only. Letter grading.

**414C. College Student Counseling (3)** Lecture, three hours. Overview of counseling at college counseling centers. Review of historical context, philosophical and practical bases, organization and administration, specific programs, and contemporary issues and trends in college student counseling. Letter grading.

**414E. Administration of Student Affairs (3)** Lecture, two hours; discussion, two hours. Overview of general knowledge and processes essential to effectively administer programs or services under student affairs. Examination of relationship between environmental factors and strategies for governing, planning, and managing student affairs programs and services. Offered in summer only. Letter grading.

**416. Program Development and Planning in Student Affairs (4)** Lecture, two hours; discussion, two hours. Planning of programs that provide or support learning for individuals and groups in student affairs context. Examination of philosophical foundations of program planning, along with pedagogical and logistical dimensions of program development. Letter grading.

**419. Introduction to Research in Student Affairs (4)** Lecture, two hours; discussion, two hours. Designed to orient students to nature of educational research in context of student affairs. Overview of quantitative, qualitative, and mixed methods to position students as scholar-practitioners. Exposure to these methods supplemented by examination of how they are used in published research relevant to practice of student affairs. Letter grading.

**420A. Principles of Curriculum (4)** Lecture, four hours. Critical examination of basic concepts underlying determination of objectives, selection and organization of learning experiences, and evaluation process. S/U or letter grading.

**425. Principles for Teaching Exceptional Individuals (3)** Lecture, three hours. Approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Letter grading.

**425S. Individualized Education: Supplemental Extensive Support Needs—Strategies and Understandings (3)** Lecture, three hours. Supports candidates in learning about and building on specific knowledge of low-incidence disabilities—including deaf/blindness, support procedures, and health impairments—as it pertains to the unique learning profiles of individualized instruction, environment, and assessment that is appropriate for student needs. Letter grading.

**426A. Program Development and Program Evaluation in Student Affairs (2)** Lecture, two hours. Introduction to program development and planning, as well as to assessment and program review. Development of knowledge of and skill in planning educational and training programs that provide support for learning within context of student affairs, as well as knowledge of and skill in developing, implementing, and analyzing assessment projects within student affairs context. Study of basic theoretical perspectives underlying program design/implementation and program review/assessment and application by developing, implementing, and assessing effectiveness of one program. In Progress grading (credit to be given only on completion of course 426B).

**426B. Program Development and Program Evaluation in Student Affairs (2)** Lecture, two hours. Introduction to program development and planning, as well as to assessment and program review. Development of knowledge of and skill in planning educational and training programs that provide support for learning within context of student affairs, as well as knowledge of and skill in developing, implementing, and analyzing assessment projects within student affairs context. Study of basic theoretical perspectives underlying program design/implementation and program review/assessment and application by developing, implementing, and assessing effectiveness of one program. Letter grading.

**427A. Individualized Education: Introduction to Special Education (3)** Lecture, three hours. Covers developing and writing individualized education plans (IEP) for students of all eligibility categories, and covers initial aspects of special education law pertaining to IEPs and the least restrictive environment (LRE). Introduction to eligibilities of other health impairments (OHI), traumatic brain injuries (TBI), and autism, along with all special education eligibilities. Students learn to implement augmentative and alternative communication, when an alternative curriculum is appropriate, and how to implement an alternative curriculum in multiple settings. Through case studies, students also learn to develop transition plans for students aged 16 or above. Letter grading.

**427B. Individualized Education: Behavior (3)** Lecture, three hours. Examination of approaches for developing behavioral interventions and supports for students with a range of disabilities. Examination of principles and assumptions underlying approaches to student support and behavior management. Emphasis on developing a student support philosophy rooted in introspective reflection and restorative practices which aims to utilize behavior challenges as catalysts for student growth. Letter grading.

**427C. Individualized Education: Introduction to Special Education—Collaboration with Families/Caregivers and Support Services (3)** Lecture, three hours. In fostering an inclusive philosophy and approach, students are instructed on how to effectively collaborate with a variety of service providers in order to support, teach, and include students with disabilities. Students are provided with research-based strategies to enable them to collaborate with the families of students with disabilities and any associated stakeholders (i.e., outside agencies/service providers); and are exposed to and guided in how to use data collection tools for developing individualized education plan (IEP) goals, and how and when to employ certain instructional strategies and assessments. Letter grading.

**427D. Individualized Education: Assessments (3)** Lecture, three hours. Covers the implementation and further development of assessment tools, data collection tools, and instructional strategies in order to use data to make informed instructional decisions through classroom instruction and/or in an individualized education plan (IEP) while keeping the student's well-being at the forefront of all decision-making processes. Students have been exposed to various perspectives on multiple formal and informal assessment tools to support critical decisions that need to be made when educating students with exceptionalities. This information serves as data for progress monitoring with both IEP goals and to support teacher instruction. Letter grading.

**440C. Administration of Instructional Programs (4)** Lecture, four hours. Examination of current educational problems in society and strategies of their solution through curriculum policy and practice; instructional design and operation; in-service training of teaching staffs. S/U or letter grading.

**441A. Instructional Supervision A (4)** Lecture, four hours. Analysis of teaching in light of research-substantiated elements of instruction: task analysis, appropriate objectives, principles that increase motivation, rate and degree of learning, retention and transfer, monitoring and adjusting instruction to meet needs and capacities of learners. S/U or letter grading.

**442B. Legal Aspects of Educational Management and Practice (4)** Lecture, four hours. Examination of structures and kinds of law governing educational systems in U.S.; constitutional dimensions of church/state relations; employees' civil rights and legal aspects of hiring, firing, and negotiating procedures; student attendance, control, and civil rights. S/U or letter grading.

**443. Policy Analysis in Education (4)** Lecture, four hours. Overview of political, economic, and legal context of educational policy formation. Included in examination are issues that impact on minorities (e.g., bilingual education, desegregation, affirmative action, role of subdominants in policy-making processes). S/U or letter grading.

**448A. Urban School Leadership (4)** Lecture, four hours. Analysis of problems of urban school leadership. Emphasis on changing nature of urban principalship, with considerable attention to role of other school and community agencies that interact with urban school leaders. S/U or letter grading.

**448B. Urban Leadership Laboratory (4)** Laboratory, four hours. Analysis of and opportunity to practice human and technical skills requisite for success as urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming, and group dynamics. S/U or letter grading.

**450. Leadership Capacity Building (4)** Lecture, one hour; discussion, three hours. Limited to Educational Leadership Program students. Course taken in year three of Educational Leadership Program to help students with their communication and leadership capacities. S/U grading.

**451. Foundations of Organizations and Leadership. (2 to 4)** Lecture, four hours. Limited to Educational Leadership Program students. Promotion of understanding of traditional and contemporary conceptions of leadership and organizational theory, with application of these conceptions to student professional work settings. Letter grading.

**452A. Educational Enterprise (4)** Lecture, two hours; discussion, two hours. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education. Focus on purposes of education governance, finance, access, and equity. Letter grading.

**452B. Educational Enterprise (4)** Lecture, two hours; discussion, two hours. Requisite: course 452A. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education. Focus on educational environments, organizations, and curriculum and instruction. Letter grading.

**454A. Action Research: Collaboration in Change (4)** Lecture, one hour; discussion, two hours; small group work, one hour. Limited to Educational Leadership Program students. Students carry out full cycle of action research at

educational site. Projects done in teams as students hone and assess their collaboration abilities. Exploration of qualitative and quantitative data gathering methods and analyses. Letter grading.

**454B. Action Research: Collaboration in Change (4)** Lecture, one hour; discussion, two hours; small group work, one hour. Limited to Educational Leadership Program students. Second course in two-course sequence on learning how to do and use action research. Honing of team processes and team roles while collaborating on data collection and analysis at educational site. Letter grading.

**455. Writing and Inquiry (4)** Lecture/workshop, eight hours per month; discussion, one hour; laboratory, one hour. Limited to doctoral students in Educational Leadership Program. Intended to assist students' professional development as writers, addressing style and organization, scholarly genres, modes of discourse, and broader issues of conceptualization and method. Letter grading.

**456. Altering Structure and Culture of Schooling. (2 to 4)** Lecture, four hours; discussion, four hours. Limited to Educational Leadership Program students. Using applied orientation, examination of variety of approaches to organizational change and ways to sustain change. Letter grading.

**458A. Practicum: Dissertation (2)** Seminar, two hours; discussion, two hours. Preparation: completion of first- and second-year courses. Limited to Educational Leadership Program students. Development of EdD dissertation and its implementation to improve educational practice. Letter grading.

**458B. Practicum: Dissertation (2)** Seminar, two hours; discussion, two hours. Preparation: completion of first- and second-year courses. Limited to Educational Leadership Program students. Development of EdD dissertation and its implementation to improve educational practice. Letter grading.

**458C. Practicum: Dissertation (2)** Seminar, two hours; discussion, two hours. Preparation: completion of first- and second-year courses. Limited to Educational Leadership Program students. Development of EdD dissertation and its implementation to improve educational practice. Letter grading.

**460. Seminar: Special Issues in Evaluation. (2, 4)** Seminar, one or two hours; discussion, one or two hours. Topics and instructors vary each term. Recent emphases include evaluation utilization and cost-effectiveness evaluation. S/U or letter grading.

**466. Critical Media Literacy: Teaching Youth to Critically Read and Create Media (4)** Lecture, four hours. Preparation for educators to teach K-12 students to explore their relationships with media by critically questioning media representations and creating their own alternative media messages. Critical media literacy combines theoretical foundations of cultural studies and critical pedagogy with practical classroom applications of new digital media as well as traditional print-based means of communication. Exploration of media representations of race, class, gender, sexual orientation, and other identity markers. Educators critically question media and technology, as well as explore new alternatives for creating multimedia messages in their own classrooms. Analysis and creation of media projects related to teaching required. Letter grading.

**470A. Seminar: Large Systems and Individual Schools (4)** Seminar, four hours. S/U or letter grading.

**471. Principles of Effective Coaching and Leadership (4)** Seminar, four hours. Introduction to principles and practice of effective coaching and teaching for aspiring coaches considering careers in professional and collegiate athletics, K-12 schools, and community-based sports organizations. Premised on principles of social justice and on value and promise of equity, inclusion, and diversity for contributing to creation of more humane, equitable, and harmonious society and nation. Letter grading.

**472. Introduction to Philosophies of Coaching (4)** Seminar, four hours. Introduction to philosophies of coaching—overarching frameworks, perspectives, deep beliefs, and values that drive coaches' specific practices—as they are manifested in writings and conduct of professional and college sport coaches. Exploration of these through study of successful coaches in variety of sports unpacking their fundamental keys of success. Reflection on and cultivation of one's own personal and intentional philosophy of coaching answering questions what is your why and what is your how. Exploration of questions such as what is coach, what is coach's overall purpose, what are desired results, how best can coach lead and produce these results. Methods and assignments include presentations, analyzing videos, group work, interviews, analyses of coaching philosophies, and constructing statement of one's own philosophy of coaching. Letter grading.

**473. Diversity Leadership in Sports and Athletics (4)** Seminar, four hours. Coaching and transformational leadership requires examination of important topics that depend upon analysis of complex, yet essential concepts. Examination and discussion of how and why sports, diversity, and leadership must be interconnected in order to meet needs of universities, professional organi-

zations, and most importantly student-athletes. Sports as industry and as enterprise. Covers its history, purpose, evolution, and role in higher education and wider society. Emphasis on student-athletes' experiences and outcomes, well-being, and readiness for educational and professional opportunities in sports and beyond. Addresses growing need for greater gender, ethnic, and racial diversity in athletic leadership. While those who participate in sports, particularly those sports designated as revenue generating, represent much of gender and racial diversity in U.S., leadership of sports falls embarrassingly short. Emphasis on equity throughout. Letter grading.

**474. Ethical Issues in Sports (4)** Lecture, three hours. Coaches and sport management professionals are likely to face numerous ethical issues and dilemmas in their day-to-day professional practices. Introduction to salient moral and ethical issues involved in physical education, sports, and coaching. Students gain analytical tools to make ethically informed decisions by introducing normative principles and framework to guide decision-making in real-life situations. Covers content areas where ethical decision-making may be relevant including sportsmanship, gambling, coaching, parental responsibilities, violence, drug use and testing, race and gender equity, media, and commercialization of college sports. Includes lectures, discussions, analysis of case studies, and applications of decision-making tools to resolve ethical issues. Letter grading.

**475. Mental Health in Athletics and Coaching (4)** Lecture, three hours. Introduction to mental health issues in context of athletics and coaching. Mental health issues are prevalent and on rise among athletes. Coaches and other sports personnel are often first line of defense and are best positioned to recognize symptoms and refer athletes to appropriate care and interventions. Cultivates greater awareness of prevalence of mental health issues among athletes. Enables students to recognize common symptoms and manifestations of mental health concerns (e.g., depression, eating disorders, etc.). Students gain knowledge base for appropriate referrals and interventions, and range of tools for creation of safe spaces within their organizations to address mental health concerns. Cultivates informed practitioners who are sensitive to mental health concerns and empathetic to plight of many who suffer from these issues. Letter grading.

**476. History and Philosophy of Sport and Physical Education (4)** Lecture, four hours. Focus on philosophical positions of body as determined by philosophical schools and intellectuals, past and present. Investigation that philosophical position of body has been significant factor in determining historic development of sport and physical activity/physical education; e.g., throughout history there were times where body was not held in high esteem, which negatively impacted development of sport. Theology also had impact upon how people viewed body. Sometimes sport thrived; sometimes it was condemned depending on theological beliefs. Body has history that is tied to sport history. Modernization theory used to explain how sport and physical activity evolved from pre-modern practice to modern practice. Study takes chronological, descriptive, and interpretive approaches. Letter grading.

**477. Leadership and Management of Athletic Departments in Educational Institutions (4)** Seminar, four hours. Introduction to principles and practices of leadership and management of athletic departments in higher education with emphasis on social justice leadership. Students develop their own, authentic and intentional leadership philosophy for leading with purpose and integrity, and gain knowledge, skills, and values to effectively lead in athletic departments. Introduction to various models of leadership and to fundamental management skills such as strategic planning, project management, effective communication, team building, team leadership, program evaluation, and effecting organizational change. Includes readings, responses to readings, analyses of case studies, developing leadership philosophy of one's own, formulating vision and mission statements, constructing strategic plans, developing communication strategies, and other individual and collaborative assignments around leadership and management of athletic departments. Letter grading.

**479. Variable Topics in Transformative Coaching and Leadership (4)** Seminar, three hours. Topics are organized around cultivating principles of coaching and leadership and their applications in practice. Study exposes students to various thinkers and concepts in coaching and leadership through readings, presentations, guest speakers, and seminar discussions. Students are encouraged to apply these principles in practice. Topics emphasize ethic of social justice and how equity, inclusion, and diversity can be fostered through coaching and leadership. Letter grading.

**481. Knowledge and Inquiry in Classroom (4)** Lecture, four hours. Logical features of instruction and their application to inquiry techniques in teaching and learning. Various conceptions of truth, belief, and fact and opinion, and their application to classroom learning situations. S/U or letter grading.

**482D. Instructional Strategies in Urban Education: Visual and Performing Arts. (1 to 4)** Lecture, two hours; discussion, two hours. Emphasis on instructional practices that integrate visual and performing arts into urban classrooms. Debriefing of field experiences implementing subject-centered arts instruction, instruction connecting arts disciplines, and instruction connecting arts and other core disciplines. Advanced exploration of elements of each art form, as well as content and emotional scaffolding strategies and reflection strategies to make learning accessible, engaging, and relevant. Letter grading.

**490A. Instructional Decision Making (4)** Lecture, four hours. Analysis of instructional models relevant to public school education. Assumptions, procedures, and constraints of each strategy considered in terms of learner and task variables. Laboratory experiences in classroom settings permit students systematically to apply and evaluate alternative instructional strategies. S/U or letter grading.

**491. Curricular Decision Making (4)** Lecture, two hours; discussion, two hours. Examination of alternative solutions for practical problems that classroom teachers face in making curricular decisions. Analysis of influences of psychological, societal, and institutional factors in curricular decisions. Letter grading.

**492. Data Centric Problem-Based Learning for Humanizing Purposes (3)** Lecture, three hours. Focuses on humanizing science, technology, engineering, and mathematics (STEM) education through integration of data science and connections to computational thinking into project-based learning (PBL) pedagogical approach. Integration of data connections to computational thinking further contextualizes humanizing STEM education. Participants (pre-service teachers) explore how their K-12 students' identities and lived experiences connect with STEM challenges. Critical analysis of data and practices of computational thinking (CT) are leveraged toward humanizing STEM purposes within curricular design and implementation of PBL project. Methods course is aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and various interests of diverse students. Letter grading.

**495. Teaching Preparation in Education (2)** Seminar, two hours. Teaching assistants (TA) are supported while becoming more effective and reflective teachers. Focus on how to create student-centered, inclusive learning experiences. Study of theory (relationship between teaching and learning), research (what we know about how people learn), and logistics (how this actually happens for students). Students gain understanding of serving as TA in education (e.g., departmental policies, responsibilities to students, how/where to get additional support, etc.). Students have opportunities to apply (in their own sections) what they learn, to reflect collaboratively on their ongoing TA experiences, and to learn from experienced TAs. S/U grading.

**498A. Directed Field Experience (1 to 8)** Clinical, to be arranged. Field experiences designed to increase understanding of student fields of study. May be repeated for credit. S/U or letter grading.

**498B. Directed Field Experience (2 to 8)** Clinical, to be arranged. Field experiences designed to increase understanding of student fields of study. May be repeated for credit. S/U or letter grading.

**498C. Directed Field Experience (2 to 8)** Clinical, to be arranged. Field experiences designed to increase understanding of student fields of study. May be repeated for credit. S/U or letter grading.

**499A. Advanced Directed Field Experience (4 to 8)** Clinical, to be arranged. Dissertation practicum that supports students in developing their proposals. Guides students on how to write their dissertation proposals and serves as writing workshop where students have opportunities to receive feedback from instructors, fellows, and peers. May be repeated for credit. Letter grading.

**499B. Advanced Directed Field Experience (4 to 8)** Clinical, to be arranged. Dissertation practicum that supports students in developing their proposals. Guides students on how to write their dissertation proposals and serves as writing workshop where students have opportunities to receive feedback from instructors, fellows, and peers. May be repeated for credit. Letter grading.

**499C. Advanced Directed Field Experience (4 to 8)** Clinical, to be arranged. Dissertation practicum that supports students in developing their proposals. Guides students on how to write their dissertation proposals and serves as writing workshop where students have opportunities to receive feedback from instructors, fellows, and peers. May be repeated for credit. Letter grading.

**501. Cooperative Program in Special Education (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA academic adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Limited to UCLA doctoral students in special education. Used to record enrollment in practicum courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Independent Study (1 to 12)** Tutorial, to be arranged (one hour per unit). Individual study or research for graduate students. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive Examinations or Doctoral Qualifying Examinations (1 to 12)** Tutorial, to be arranged. Individual study for master's comprehensive examinations or for PhD or EdD qualifying examinations. May be repeated for credit. S/U grading.

**598. Thesis Research (4 to 12)** Tutorial, to be arranged (four hours for every 4 units). Research for and preparation of master's thesis. May be taken for maximum of 12 units. S/U grading.

**599. Dissertation Research (4 to 12)** Tutorial, to be arranged (four hours for every 4 units). Research for and preparation of doctoral dissertation. May be repeated for credit. S/U grading.

# Electrical and Computer Engineering

## Electrical and Computer Engineering Courses

### Lower Division

**1. Undergraduate Seminar (1)** Seminar, one hour; outside study, two hours. Introduction by faculty members and industry lecturers to electrical engineering disciplines through current and emerging applications of autonomous systems and vehicles, biomedical devices, aerospace electronic systems, consumer products, data science, and entertainment products (amusement rides, etc.), as well as energy generation, storage, and transmission. P/NP grading.

**2. Physics for Electrical Engineers (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Introduction to concepts of modern physics necessary to understand solid-state devices, including elementary quantum theory, Fermi energies, and concepts of electrons in solids. Discussion of electrical properties of semiconductors leading to operation of junction devices. Letter grading.

**2H. Physics for Electrical Engineers (Honors) (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Honors course parallel to course 2. Letter grading.

**3. Introduction to Electrical Engineering (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Introduction to field of electrical engineering. Basic circuits techniques with application to explanation of electrical engineering inventions such as telecommunications, electrical grid, automatic computing and control, and enabling device technology. Research frontiers of electrical engineering. Introduction to measurement and design of electrical circuits. Letter grading.

**10. Circuit Theory I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 3 (or Computer Science 1 or Materials Science 10), Mathematics 33A, Physics 1B. Corequisites: course 11L (enforced), Mathematics 33B. Introduction to linear circuit analysis. Resistive circuits, capacitors, inductors and ideal transformers, Kirchhoff laws, node and loop analysis, first-order circuits, second-order circuits, Thevenin and Norton theorem, sinusoidal steady state. Letter grading.

**10H. Circuit Theory I (Honors) (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 3 (or Computer Science 1 or Materials Science 10), Mathematics 33A, Physics 1B. Corequisites: course 11L (enforced only for Computer Science and Engineering and Electrical Engineering majors), Mathematics 33B. Honors course parallel to course 10. Letter grading.

**11L. Circuits Laboratory I (1)** Lecture, one hour; laboratory, one hour; outside study, one hour. Enforced corequisite: course 10. Experiments with basic circuits containing resistors, capacitors, inductors, and transformers. Ohm's law voltage and current division, Thevenin and Norton equivalent circuits, superposition, transient and steady state analysis. Letter grading.

**16. Logic Design of Digital Systems (4)** (Same as Computer Science M51A.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to digital systems. Specification and implementation of combinational and sequential systems. Standard logic modules and programmable logic arrays. Specification and implementation of algorithmic systems: data and control sections. Number systems and arithmetic algorithms. Error control codes for digital information. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good

academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Electrical and Electronic Circuits (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Mathematics 33A, 33B or Mechanical and Aerospace Engineering 82, Physics 1C. Not open for credit to students with credit for course 110. Electrical quantities, linear circuit elements, circuit principles, signal waveforms, transient and steady state circuit behavior, semiconductor diodes and transistors, small signal models, and operational amplifiers. Letter grading.

**101A. Engineering Electromagnetics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Mathematics 32A and 32B, or 33A and 33B, Physics 1C. Electromagnetic field concepts, waves and phasors, transmission lines and Smith chart, transient responses, vector analysis, introduction to Maxwell equations, static and quasi-static electric and magnetic fields. Letter grading.

**101B. Electromagnetic Waves (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101A. Time-varying fields and Maxwell equations, plane wave propagation and interaction with media, energy flow and Poynting vector, guided waves in waveguides, phase and group velocity, radiation and antennas. Letter grading.

**102. Systems and Signals (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Mathematics 33A. Corequisite: Mathematics 33B. Elements of differential equations, first- and second-order equations, variation of parameters method and method of undetermined coefficients, existence and uniqueness. Systems: input/output description, linearity, time-invariance, and causality. Impulse response functions, superposition and convolution integrals. Laplace transforms and system functions. Fourier series and transforms. Frequency responses, responses of systems to periodic signals. Sampling theorem. Letter grading.

**110. Circuit Theory II (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisites: courses 10, M16 (or Computer Science M51A), 102. Corequisite: course 111L (enforced only for Computer Science and Engineering and Electrical Engineering majors). Sinusoidal excitation and phasors, AC steady state analysis, AC steady state power, network functions, poles and zeros, frequency response, mutual inductance, ideal transformer, application of Laplace transforms to circuit analysis. Letter grading.

**110H. Circuit Theory II (Honors) (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 10, M16 (or Computer Science M51A), 102. Corequisite: course 111L. Sinusoidal excitation and phasors, AC steady state analysis, AC steady state power, network functions, poles and zeros, frequency response, mutual inductance, ideal transformer, application of Laplace transforms to circuit analysis. Letter grading.

**110L. Circuit Measurements Laboratory (2)** Laboratory, four hours; outside study, two hours. Requisite: course 100 or 110. Experiments with basic circuits containing resistors, capacitors, inductors, and op-amps. Ohm's law voltage and current division, Thevenin and Norton equivalent circuits, superposition, transient and steady state analysis, and frequency response principles. Letter grading.

**111L. Circuits Laboratory II (1)** Lecture, one hour; laboratory, one hour; outside study, one hour. Enforced requisites: courses 10, 11L. Enforced corequisite: course 110. Experiments with electrical circuits containing resistors, capacitors, inductors, transformers, and op-amps. Steady state power analysis, frequency response principles, op-amp-based circuit synthesis, and two-port network principles. Letter grading.

**112. Introduction to Power Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 110. Complete overview of organization and operation of interconnected power systems. Development of appropriate models for interconnected power systems and learning how to perform power flow, economic dispatch, and short circuit analysis. Introduction to power system transient dynamics. Letter grading.

**113. Digital Signal Processing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 102. Relationship between continuous-time and discrete-time signals. Z-transform. Discrete Fourier transform. Fast Fourier transform. Structures for digital filtering. Introduction to digital filter design techniques. Letter grading.

**113DA. Digital Signal Processing Design (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisite: course 113. Real-time implementation of digital signal processing algorithms on digital processor chips. Experiments involving A/D and D/A conversion, aliasing, digital fil-

tering, sinusoidal oscillators, Fourier transforms, and finite wordlength effects. Course project involving original design and implementation of machine learning and signal processing systems for communications, radar, medical and other imaging, speech, music, or video using DSP hardware. Lectures include ethical concerns and societal implications of DSP-related technologies, and bi-weekly Writing II discussions. In progress grading (credit to be given only on completion of course 113DW).

**113DW. Digital Signal Processing Design (4)** (Formerly numbered 113DB.) Laboratory, four hours; outside study, eight hours. Enforced requisites: courses 113, 113DA. Real-time implementation of digital signal processing algorithms on digital processor chips. Experiments involving A/D and D/A conversion, aliasing, digital filtering, sinusoidal oscillators, Fourier transforms, and finite wordlength effects. Course project involving original design and implementation of signal processing systems for communications, speech, audio, or video using DSP chip. Completion of projects begun in course 113DA. Satisfies Writing II requirement. Letter grading.

**114. Speech and Image Processing Systems Design (4)** Lecture, three hours; discussion, one hour; laboratory, two hours; outside study, six hours. Enforced requisite: course 113. Design principles of speech and image processing systems. Speech production, analysis, and modeling in first half of course; design techniques for image enhancement, filtering, and transformation in second half. Lectures supplemented by laboratory implementation of speech and image processing tasks. Letter grading.

**115A. Analog Electronic Circuits I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 110. Review of physics and operation of diodes and bipolar and MOS transistors. Equivalent circuits and models of semiconductor devices. Analysis and design of single-stage amplifiers. DC biasing circuits. Small-signal analysis. Operational amplifier systems. Letter grading.

**115AL. Analog Electronics Laboratory I (2)** Laboratory, four hours; outside study, two hours. Enforced requisites: courses 110L or 111L, 115A. Experimental determination of device characteristics, resistive diode circuits, single-stage amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers, operational amplifiers, and operational amplifier circuits. Introduction to hands-on design experience based on individual student hardware design and implementation platforms. Letter grading.

**115B. Analog Electronic Circuits II (4)** Lecture, four hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 115A. Analysis and design of differential amplifiers in bipolar and CMOS technologies. Current mirrors and active loads. Frequency response of amplifiers. Feedback and its properties. Stability issues and frequency compensation. Letter grading.

**115C. Digital Electronic Circuits (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 100 or 115A, and Computer Science M51A. Transistor-level digital circuit analysis and design. Modern logic families (static CMOS, pass-transistor, dynamic logic), integrated circuit (IC) layout, digital circuits (logic gates, flipflops/latches, counters, etc.), computer-aided simulation of digital circuits. Letter grading.

**115DA. Electronic Circuits and Systems Design (4)** (Formerly numbered 164DA.) Lecture, two hours; laboratory, two hours; outside study, eight hours. Recommended corequisite: course 115B or consent of instructor. Design of analog circuits, components and systems, emphasizing theoretical foundations and hands-on experience. Design of key analog and digital building blocks according to given specifications or in the form of open-ended problems. Introduction to advanced topics related to projects through lectures and laboratories. Creation by students of end-to-end systems in application context, managing trade-offs across subsystems while meeting constraints and optimizing metrics related to cost, performance, ease of use, manufacturability, testing, and other real-world issues. Oral and written presentations of project results are required. In progress grading (credit to be given only on completion of course 115DW).

**115DW. Electronic Circuits and Systems Design (4)** (Formerly numbered 115DB.) Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisite: course 115DA. Limited to senior Electrical Engineering majors. Design of analog circuits, components and systems, emphasizing theoretical foundations and hands-on experience. Design of key analog and digital building blocks according to given specifications or in the form of open-ended problems. Introduction to advanced topics related to projects through lectures and laboratories. Creation by students of end-to-end systems in application context, managing trade-offs across subsystems while meeting constraints and optimizing metrics related to cost, performance, ease of use, manufacturability, testing, and other real-world issues. Professional technical writing instruction and assignments. Professional technical

writing instruction on assignments. Oral and written presentations of project results are required. Completion of projects begun in course 115DA. Satisfies Writing II requirement. Letter grading.

**115E. Design Studies in Electronic Circuits (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: course 115B. Description of process of circuit design through lectures to complement other laboratory-based design courses. Topics vary by instructor and include communication circuits, power electronics, and instrumentation and measurement and may entail simulation-based design projects. Emphasis throughout on design-oriented analysis and rigorous approach to practical circuit design. Letter grading.

**116C. Computer Systems Architecture (4)** (Same as Computer Science M151B.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisites: course M16 or Computer Science M51A, Computer Science 33. Recommended: course M116L or Computer Science M152A, Computer Science 111. Computer system organization and design, implementation of CPU datapath and control, instruction set design, memory hierarchy (caches, main memory, virtual memory) organization and management, input/output subsystems (bus structures, interrupts, DMA), performance evaluation, pipelined processors. Letter grading.

**116L. Introductory Digital Design Laboratory (2)** (Same as Computer Science M152A.) Laboratory, four hours; outside study, two hours. Enforced prerequisite: course M16 or Computer Science M51A. Hands-on design, implementation, and debugging of digital logic circuits, use of computer-aided design tools for schematic capture and simulation, implementation of complex circuits using programmed array logic, design projects. Letter grading.

**117. Computer System Security (4)** (Formerly numbered 117.) (Same as Computer Science M138.) Lecture, four hours; laboratory, one hour; outside study, seven hours. Prerequisite: Computer Science 33. Recommended prerequisite: Computer Science 111. Introduction to fundamental knowledge of computer system security. Students gain understanding of exploit techniques; learn to use the security tools; learn to design and implement secure systems; and learn concepts of computer security including software vulnerability analysis and defense, web security, mobile security, and network security. Covers the latest security topics in practice (e.g., cryptocurrency), and in research (e.g., state-of-the-art fuzzing techniques and machine-learning-based security analysis). Students get hands-on experience in analyzing and designing secure systems. Includes course project for cutting-edge security research. Letter grading.

**119. Fundamentals of Embedded Networked Systems (4)** (Same as Computer Science M119.) Lecture, four hours; discussion, one hour; outside study, seven hours. Prerequisites: course 132B or Computer Science 118; one course from course 131A, Civil and Environmental Engineering 110, Mathematics 170A, 170E, Statistics 100A; Computer Science 33. Design trade-offs and principles of operation of cyber physical systems such as devices and systems constituting Internet of Things. Topics include signal propagation and modeling, sensing, node architecture and operation, and applications. Letter grading.

**121B. Principles of Semiconductor Device Design (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced prerequisite: course 2. Introduction to principles of operation of bipolar and MOS transistors, equivalent circuits, high-frequency behavior, voltage limitations. Letter grading.

**121DA. Semiconductor Processing and Device Design (4)** Lecture, four hours; laboratory, four hours; outside study, four hours. Enforced prerequisite or corequisite: course 121B. Design fabrication and characterization of p-n junction and transistors. Students perform various processing tasks such as wafer preparation, oxidation, diffusion, metallization, and photolithography. Introduction to CAD tools used in integrated circuit processing and device design. Device structure optimization tool based on MEDICI; process integration tool based on SUPREM. Course familiarizes students with those tools. Using CAD tools, CMOS process integration to be designed. In progress grading (credit to be given only on completion of course 121DB).

**121DB. Semiconductor Processing and Device Design (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced prerequisites: courses 121B, 121DA. Design fabrication and characterization of p-n junction and transistors. Students perform various processing tasks such as wafer preparation, oxidation, diffusion, metallization, and photolithography. Introduction to CAD tools used in integrated circuit processing and device design. Device structure optimization tool based on MEDICI; process integration tool based on SUPREM. Course familiarizes students with those tools. Using CAD tools, CMOS process integration to be designed. Letter grading.

**123A. Fundamentals of Solid-State I (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: course 2 or Physics 1C. Limited to junior/senior engineering majors. Fundamentals of solid-state, introduction to

quantum mechanics and quantum statistics applied to solid-state. Crystal structure, energy levels in solids, and band theory and semiconductor properties. Letter grading.

**123B. Fundamentals of Solid-State II (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 123A. Discussion of solid-state properties, lattice vibrations, thermal properties, dielectric, magnetic, and superconducting properties. Letter grading.

**128. Principles of Nanoelectronics (4)** Lecture, four hours; discussion, four hours; outside study, four hours. Prerequisite: Physics 1C. Introduction to fundamentals of nanoscience for electronics nanosystems. Principles of fundamental quantities: electron charge, effective mass, Bohr magneton, and spin, as well as theoretical approaches. From these nanoscale components, discussion of basic behaviors of nanosystems such as analysis of dynamics, variability, and noise, contrasted with those of scaled CMOS. Incorporation of design project in which students are challenged to design electronics nanosystems. Letter grading.

**131A. Probability and Statistics (4)** Lecture, four hours; discussion, one hour; outside study, 10 hours. Prerequisites: Mathematics 32B, 33B. Introduction to basic concepts of probability, including random variables and vectors, distributions and densities, moments, characteristic functions, and limit theorems. Applications to communication, control, and signal processing. Introduction to computer simulation and generation of random events. Letter grading.

**132A. Introduction to Communication Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisites: courses 102, 113, 131A. Review of basic probability, basics of hypothesis testing, sufficient statistics and waveform communication, signal-design tradeoffs for digital communications, basics of error control coding, intersymbol interference channels and orthogonal frequency division multiplexing (OFDM), basics of wireless communications. Letter grading.

**132B. Data Communications and Telecommunication Networks (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: course 131A. Layered communications architectures. Queueing system modeling and analysis. Error control, flow and congestion control. Packet switching, circuit switching, and routing. Network performance analysis and design. Multiple-access communications: TDMA, FDMA, polling, random access. Local, metropolitan, wide area, integrated services networks. Letter grading.

**133A. Applied Numerical Computing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisites: course 131A, and Civil Engineering M20 or Computer Science 31 or Mechanical and Aerospace Engineering M20. Introduction to numerical computing/analysis; analytic formulations versus numerical solutions; floating-point representations and rounding errors. Review of MATLAB; mathematical software. Linear equations; LU factorization; bounds on error; iterative methods for solving linear equations; conditioning and stability; complexity. Interpolation and approximation; splines. Zeros and roots of nonlinear equations. Linear least squares and orthogonal (QR) factorization; statistical interpretation. Numerical optimization; Newton method; nonlinear least squares. Numerical quadrature. Solving ordinary differential equations. Eigenvalues and singular values; QR algorithm; statistical applications. Letter grading.

**133B. Simulation, Optimization, and Data Analysis (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: course 133A. Simulation of dynamical systems. Algorithms for ordinary differential and difference equations. Fourier analysis; fast Fourier transforms. Random number generators. Simulation of stochastic systems, Monte Carlo methods. Constrained optimization; applications of optimization to engineering design, modeling, and data analysis. Introduction to data mining and machine learning. Algorithms and complexity. Integration of mathematical software in applications. Letter grading.

**134. Graph Theory in Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Basics of graph theory, including trees, bipartite graphs and matching, vertex and edge coloring, planar graphs and networks. Emphasis on reducing real-world engineering problems to graph theory formulations. Letter grading.

**141. Principles of Feedback Control (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: course 102. Mathematical modeling of physical control systems in form of differential equations and transfer functions. Design problems, system performance indices of feedback control systems via classical techniques, root-locus and frequency-domain methods. Computer-aided solution of design problems from real world. Letter grading.

**142. Linear Systems: State-Space Approach (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisite: course 102. State-space methods of linear system analysis and synthesis, with application to problems in networks, control, and system modeling. Letter grading.



**C143A. Neural Signal Processing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 131A, Mathematics 33A. Topics include fundamental properties of electrical activity in neurons; technology for measuring neural activity; spiking statistics and Poisson processes; generative models and classification; regression and Kalman filtering; principal components analysis, factor analysis, and expectation maximization. Concurrently scheduled with course C243A. Letter grading.

**146. Introduction to Machine Learning (4)** (Same as Computer Science M146.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 131A or Civil and Environmental Engineering 110 or Mathematics 170A or 170E or Statistics 100A; Computer Science 32 or Program in Computing 10C; Mathematics 33A. Introduction to breadth of data science. Foundations for modeling data sources, principles of operation of common tools for data analysis, and application of tools and models to data gathering and analysis. Topics include statistical foundations, regression, classification, kernel methods, clustering, expectation maximization, principal component analysis, decision theory, reinforcement learning and deep learning. Letter grading.

**C147. Neural Networks and Deep Learning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 131A, 133A or 205A, and M146, or equivalent. Review of machine learning concepts; maximum likelihood; supervised classification; neural network architectures; backpropagation; regularization for training neural networks; optimization for training neural networks; convolutional neural networks; practical CNN architectures; deep learning libraries in Python; recurrent neural networks, backpropagation through time, long short-term memory and gated recurrent units; variational autoencoders; generative adversarial networks; adversarial examples and training. Concurrently scheduled with course C247. Letter grading.

**148. Introduction to Data Science (4)** (Same as Computer Science M148.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: one course from 131A, Civil and Environmental Engineering 110, Mathematics 170A, Mathematics 170E, or Statistics 100A, and Computer Science 31 or Program in Computing 10A, and 10B. How to analyze data arising in real world so as to understand corresponding phenomenon. Covers topics in machine learning, data analytics, and statistical modeling classically employed for prediction. Comprehensive, hands-on overview of data science domain by blending theoretical and practical instruction. Data science lifecycle: data selection and cleaning, feature engineering, model selection, and prediction methodologies. Letter grading.

**149. Foundations of Computer Vision (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisites: courses 102, 131A, Mathematics 33A. Covers foundations of computer vision from both theoretical and practical perspective. Particular emphasis on classical computer vision, which should be seen as complementary to deep learning. Study is relevant for various majors in the sciences specializing in artificial intelligence, cyberphysical systems and information engineering, robotics, machine learning, perception, and others looking for applications. Letter grading.

**153. Introduction to Microscale and Nanoscale Manufacturing (4)** (Same as Bioengineering M153, Chemical Engineering M153, and Mechanical and Aerospace Engineering M183B.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern clean-room environment. Letter grading.

**162A. Wireless Communication Links and Antennas (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 101B. Basic properties of transmitting and receiving antennas and antenna arrays. Array synthesis. Adaptive arrays. Friis transmission formula, radar equations. Cell-site and mobile antennas, bandwidth budget. Noise in communication systems (transmission lines, antennas, atmospheric, etc.). Cell-site and mobile antennas, cell coverage for signal and traffic, interference, multipath fading, ray bending, and other propagation phenomena. Letter grading.

**163A. Introductory Microwave Circuits (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101B. Transmission lines description of waveguides, impedance matching techniques, power dividers, directional couplers, active devices, transistor amplifier design. Letter grading.

**163C. Fundamental Principles of Radiofrequency and Microwave Systems (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 101B. Theory and design of modern radiofrequency (RF) and microwave systems such as cellular communications, satellite systems, radar systems, wireless sensors, and biological applications of microwaves such as magnetic resonance imaging (MRI). Letter grading.

**163DA. Microwave and Wireless Design I (4)** Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisites: courses 101A, 101B. Course 163DA is enforced requisite to 163DB. Limited to senior Electrical Engineering majors. Capstone design course, with emphasis on transmission line-based circuits and components to address need in industry and research community for students with microwave and wireless circuit design experiences. Standard design procedure for waveguide and transmission line-based microwave circuits and systems to gain experience in using Microwave CAD software such as Agilent ADS or HFSS. How to fabricate and test these designs. In Progress grading (credit to be given only on completion of course 163DB).

**163DB. Microwave and Wireless Design II (4)** Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisites: courses 101A, 101B, 163DA. Limited to senior Electrical Engineering majors. Design of radio frequency circuits and systems, with emphasis on both theoretical foundations and hands-on experience. Design of radio frequency transceivers and their building blocks according to given specifications or in form of open-ended problems. Introduction to advanced topics related to projects through lecture and laboratories. Creation by students of end-to-end systems in application context, managing trade-offs across subsystems while meeting constraints and optimizing metrics related to cost, performance, ease of use, manufacturability, testing, and other real-world issues. Oral and written presentations of project results required. Letter grading.

**170A. Principles of Photonics (4)** Lecture, four hours; recitation, one hour; outside study, seven hours. Enforced requisites: courses 2, 101A. Development of solid foundation on essential principles of photonics from ground up with minimum prior knowledge on this subject. Topics include optical properties of materials, optical wave propagation and modes, optical interferometers and resonators, optical coupling and modulation, optical absorption and emission, principles of lasers and light-emitting diodes, and optical detection. Letter grading.

**170B. Lasers and Photonic Devices (4)** Lecture, four hours; recitation, one hour; outside study, seven hours. Enforced requisite: course 170A. Coverage of laser physics, related photonic devices, and applications of lasers. Topics include resonators, thermal radiation, Einstein coefficients, optical amplification, semiconductor lasers, optical modulation and detection. Letter grading.

**170C. Photonic Sensors and Solar Cells (4)** Lecture, four hours; recitation, one hour; outside study, seven hours. Enforced requisite: course 101A. Recommended: courses 2, 170A. Fundamentals of detection of light for communication and sensing, as well as conversion of light to electrical energy in solar cells. Introduction to radiometry, semiconductor photodetectors, noise processes and figures of merit, thermal detectors, and photovoltaic solar cells of various types and materials. Letter grading.

**171L. Data Communication Systems Laboratory. (2 to 4)** (Same as Computer Science M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: course M116L. Limited to seniors. Not open to students with credit for course M117. Interpretation of analog-signaling aspects of digital systems and data communications through experience in using contemporary test instruments to generate and display signals in relevant laboratory setups. Use of oscilloscopes, pulse and function generators, baseband spectrum analyzers, desktop computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

**173DA. Photonics and Communication Design (4)** Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisite: course 101A. Recommended: course 170A or Bioengineering C170. Introduction to measurement of basic photonic devices, including LEDs, lasers, detectors, and amplifiers; fiber-optic fundamentals and measurement of fiber systems. Modulation techniques, including AM, FM, phase and suppressed carrier methods. Possible projects include lasers, optical communication, and biomedical imaging and sensing. Choice of project preliminary design. In Progress grading (credit to be given only on completion of course 173DB).

**173DB. Photonics and Communication Design (4)** Lecture, one hour; laboratory, three hours; outside study, eight hours. Enforced requisites: courses 101A, 173DA. Introduction to measurement of basic photonic devices, including LEDs, lasers, detectors, and amplifiers; fiber-optic fundamentals and measurement of fiber systems. Modulation techniques, including AM, FM,

phase and suppressed carrier methods. Possible projects include lasers, optical communication, and biomedical imaging and sensing. Finalization of design and testing of projects begun in course 173DA. Letter grading.

**176. Photonics in Biomedical Applications (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced prerequisite: course 101A. Study of different types of optical systems and their physics background. Examination of their roles in current and projected biomedical applications. Specific capabilities of photonics to be related to each example. Letter grading.

**180DA. Systems Design (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Limited to senior Electrical Engineering and Computer Engineering majors. Advanced systems design integrating communications, control, and signal processing subsystems. Introduction to advanced topics related to projects through lecture and laboratories. Open-ended projects vary each offering. Student teams create high-performance designs that manage trade-offs among subsystem components, including cost, performance, ease of use, and other real-world constraints. Societal implications of such systems. Professional technical writing instruction and assignments. Oral and written presentation of project results. In Progress grading (credit to be given only on completion of course 180DW).

**180DW. Systems Design (4)** (Formerly numbered 180DB.) Laboratory, four hours; outside study, eight hours. Enforced prerequisite: course 180DA. Advanced systems design integrating communications, control, and signal processing subsystems. Introduction to advanced topics related to projects through lecture and laboratories. Open-ended projects vary each offering. Student teams create high-performance designs that manage trade-offs among subsystem components, including cost, performance, ease of use, and other real-world constraints. Societal implications of such systems. Professional technical writing instruction and assignments. Oral and written presentation of project results. Completion of projects begun in course 180DA. Satisfies Writing II requirement. Letter grading.

**181DA. Honors Thesis (4)** Tutorial, one hour; outside study, 11 hours. Limited to seniors. Research by individuals or small teams under supervision of faculty mentor, leading to composition and presentation of honors thesis. Study of fundamentals of modern research and development: project conception, planning, development and testing; design iteration cycle; research and data documentation standards; how to read technical literature. Planning, execution, and documentation of original open-ended research/development project. Study of research fundamentals, conception of project plan, and first iteration of design such as experiment, simulation, algorithm, or hardware artifact, each with testing and validation plan. Written documentation of design with oral presentation. In Progress grading (credit to be given only on completion of course 181DB).

**181DB. Honors Thesis (4)** Tutorial, one hour; outside study, 11 hours. Enforced prerequisite: course 181DA. Limited to seniors. Research by individuals or small teams under supervision of faculty mentor, leading to composition and presentation of honors thesis. Study of fundamentals of modern research and development: project conception, planning, development and testing; design iteration cycle; research and data documentation standards; how to read technical literature. Planning, execution, and documentation of original open-ended research/development project. Iterations of design. Written documentation in form of thesis documenting results in their societal and technical contexts, and oral presentation/demonstration of final results. Letter grading.

**CM182. Science, Technology, and Public Policy (4)** (Same as Public Affairs M164 and Public Policy CM182.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM282. Letter grading.

**183DA. Design of Robotic Systems I (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Requisite: course 102. Recommended: courses 141, 142. Course 183DA is requisite to 183DB. Limited to senior Electrical Engineering majors. Topics in robotic design include integrated electromechanical design, design for manufacturing (DFM), design software, and design automation. Topics in robotic manufacturing include materials, sensors and actuators, programming, and rapid prototyping. Topics in control include manipulation, motion and path planning, learning and adaptation, and human-robot interaction. Additional topics may include distributed and multi-robot systems, bio-inspired robotics, project management, and societal implications. Open-ended projects vary annually. Student teams create and analyze robotic systems for various applications. Oral and written presentation of project results. In Progress grading (credit to be given only on completion of course 183DB).

**183DB. Design of Robotic Systems II (4)** Laboratory, four hours; outside study, eight hours. Requisite: course 183DA. Recommended: courses 141, 142. Limited to senior Electrical Engineering majors. Topics in robotic design include integrated electromechanical design, design for manufacturing (DFM), design software, and design automation. Topics in robotic manufacturing include materials, sensors and actuators, programming, and rapid prototyping. Topics in control include manipulation, motion and path planning, learning and adaptation, and human-robot interaction. Additional topics may include distributed and multi-robot systems, bio-inspired robotics, project management, and societal implications. Open-ended projects vary annually. Student teams create and analyze robotic systems for various applications. Oral and written presentation of project results. Letter grading.

**184DA. Independent Group Project Design (2)** Laboratory, five hours; discussion, one hour. Enforced prerequisites: courses M16, 110, 110L. Course 184DA is enforced requisite to 184DB. Courses centered on group project that runs year long to give students intensive experience on hardware design, microcontroller programming, and project coordination. Several projects based on autonomous robots that traverse small mazes and courses offered yearly and target regional competitions. Students may submit proposals that are evaluated and approved by faculty members. Topics include sensing circuits and amplifier-based design, microcontroller programming, feedback control, actuation, and motor control. In Progress grading (credit to be given only on completion of course 184DB).

**184DB. Independent Group Project Design (2)** Laboratory, five hours; discussion, one hour. Enforced prerequisites: courses M16, 110, 110L, 184DA. Courses centered on group project that runs year long to give students intensive experience on hardware design, microcontroller programming, and project coordination. Several projects based on autonomous robots that traverse small mazes and courses offered yearly and target regional competitions. Students may submit proposals that are evaluated and approved by faculty members. Topics include sensing circuits and amplifier-based design, microcontroller programming, feedback control, actuation, and motor control. Letter grading.

**185. Introduction to Plasma Science and Engineering (4)** (Same as Earth, Planetary, and Space Sciences M156 and Physics M122.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 101A or Physics 110B. Senior-level introductory course on electrodynamics of charged particles and their collective behavior in plasmas in laboratory, near-Earth space and astrophysical settings. Covers selected applications taken from fusion energy, space weather, materials processing, generation of coherent radiation and particle accelerators. Letter grading.

**188. Special Courses in Electrical Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Special topics in electrical engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**194. Research Group Seminars: Electrical Engineering. (2 to 4)** Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. Letter grading.

**199. Directed Research in Electrical Engineering. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project re-

quired. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**201A. VLSI Design Automation (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 115C. Fundamentals of design automation of VLSI circuits and systems, including introduction to circuit and system platforms such as field programmable gate arrays and multicore systems; high-level synthesis, logic synthesis, and technology mapping; physical design; and testing and verification. Letter grading.

**201C. Modeling of VLSI Circuits and Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 115C. Detailed study of VLSI circuit and system models considering performance, signal integrity, power and thermal effects, reliability, and manufacturability. Discussion of principles of modeling and optimization codevelopment. Letter grading.

**201D. Design in Nanoscale Technologies (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 115C. Challenges of digital circuit design and layout in deeply scaled technologies, with focus on design-manufacturing interactions. Summary of large-scale digital design flow; basic manufacturing flow; lithographic patterning, resolution enhancement, and mask preparation; yield and variation modeling; circuit reliability and aging issues; design rules and their origins; layout design for manufacturing; test structures and process control; circuit and architecture methods for variability mitigation. Letter grading.

**202A. Embedded Systems (4)** (Same as Computer Science M213A.) Lecture, four hours; discussion, one hour; outside study, seven hours. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for design of embedded systems. Topics include hardware and software platforms for embedded systems, techniques for modeling and specification of system behavior, software organization, real-time operating system scheduling, real-time communication and packet scheduling, low-power battery and energy-aware system design, timing synchronization, fault tolerance and debugging, and techniques for hardware and software architecture optimization. Theoretical foundations as well as practical design methods. Letter grading.

**202B. Energy-Aware Computing and Cyber-Physical Systems (4)** (Same as Computer Science M213B.) Lecture, four hours; outside study, eight hours. Requisite: course M16 or Computer Science M51A. Recommended: course M116C or Computer Science M151B, and Computer Science 111. System-level management and cross-layer methods for power and energy consumption in computing and communication at various scales ranging across embedded, mobile, personal, enterprise, and data-center scale. Computing, networking, sensing, and control technologies and algorithms for improving energy sustainability in human-cyber-physical systems. Topics include modeling of energy consumption, energy sources, and energy storage; dynamic power management; power-performance scaling and energy proportionality; duty-cycling; power-aware scheduling; low-power protocols; battery modeling and management; thermal management; sensing of power consumption. Letter grading.

**202C. Networked Embedded Systems Design (4)** Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for graduate computer science and electrical engineering students. Training in combination of networked embedded systems design combining embedded hardware platform, embedded operating system, and hardware/software interface. Essential graduate student background for research and industry career paths in wireless devices for applications ranging from conventional wireless mobile devices to new area of wireless health. Laboratory design modules and course projects based on state-of-art embedded hardware platform. Letter grading.

**205A. Matrix Analysis for Scientists and Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Preparation: one undergraduate linear algebra course. Designed for first-year graduate students in all branches of engineering, science, and related disciplines. Introduction to matrix theory and linear algebra, language in which virtually all of modern science and engineering is conducted. Review of matrices taught in undergraduate courses and introduction to graduate-level topics. Letter grading.

**206. Machine Perception (4)** (Same as Computer Science M268.) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for graduate students. Computational aspects of processing visual and other sensory information. Unified treatment of early vision in man and machine. Integration of symbolic and iconic representations in process of image segmentation. Computing multimodal sensory information by neural-net architectures. Letter grading.

**208B. Functional Analysis for Applied Mathematics and Engineering (4)** (Same as Mathematics M268A.) Lecture, four hours; outside study, eight hours. Requisites: course 208A (or Mathematics 115A and 115B), Mathematics 131A, 131B, 132. Topics may include  $L_p$  spaces, Hilbert, Banach, and separable spaces; Fourier transforms; linear functionals. Riesz representation theory, linear operators and their adjoints; self-adjoint and compact operators. Spectral theory. Differential operators such as Laplacian and eigenvalue problems. Resolvent distributions and Green's functions. Semigroups. Applications. S/U or letter grading.

**208C. Topics in Functional Analysis for Applied Mathematics and Engineering (4)** (Same as Mathematics M268B.) Lecture, four hours; outside study, eight hours. Requisite: course M208B. Semigroups of linear operators over Hilbert spaces; generator and resolvent, generation theorems, Laplace inversion formula. Dissipative operators and contraction semigroups. Analytic semigroups and spectral representation. Semigroups with compact resolvents. Parabolic and hyperbolic systems. Controllability and stabilizability. Spectral theory of differential operators, PDEs, generalized functions. S/U or letter grading.

**209AS. Special Topics in Circuits and Embedded Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Special topics in one or more aspects of circuits and embedded systems, such as digital, analog, mixed-signal, and radio frequency integrated circuits (RF ICs); electronic design automation; wireless communication circuits and systems; embedded processor architectures; embedded software; distributed sensor and actuator networks; robotics; and embedded security. May be repeated for credit with topic change. S/U or letter grading.

**209BS. Seminar: Circuits and Embedded Systems (2 to 4)** Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of circuits and embedded systems, such as digital, analog, mixed-signal, and radio frequency integrated circuits (RF ICs); electronic design automation; wireless communication circuits and systems; embedded processor architectures; embedded software; distributed sensor and actuator networks; robotics; and embedded security. May be repeated for credit with topic change. S/U or letter grading.

**210A. Adaptation and Learning (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Preparation: prior training in probability theory, random processes, and linear algebra. Recommended requisites: courses 205A, 241A. Mean-square-error estimation and filters, least-squares estimation and filters, steepest-descent algorithms, stochastic-gradient algorithms, convergence, stability, tracking, and performance, algorithms for adaptation and learning, adaptive filters, learning and classification, optimization. Letter grading.

**210B. Inference over Networks (4)** Lecture, four hours; outside study, eight hours. Preparation: prior training in probability theory, random processes, linear algebra, and adaptation. Enforced prerequisite: course 210A. Adaptation, learning, estimation, and detection over networks. Steepest-descent algorithms, stochastic-gradient algorithms, convergence, stability, tracking, and performance analyses. Distributed optimization. Online and distributed adaptation and learning. Synchronous and asynchronous network behavior. Incremental, consensus, diffusion, and gossip strategies. Letter grading.

**211A. Digital Image Processing I (4)** Lecture, three hours; discussion, one hour; laboratory, four hours; outside study, four hours. Preparation: computer programming experience. Requisite: course 113. Fundamentals of digital image processing theory and techniques. Topics include two-dimensional linear system theory, image transforms, and enhancement. Concepts covered in lecture applied in computer laboratory assignments. Letter grading.

**212A. Theory and Design of Digital Filters (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 113. Approximation of filter specifications. Use of design charts. Structures for recursive digital filters. FIR filter design techniques. Comparison of IIR and FIR structures. Implementation of digital filters. Limit cycles. Overflow oscillations. Discrete random signals. Wave digital filters. Letter grading.

**214A. Digital Speech Processing (4)** (Same as Bioengineering M214A.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: course 113. Theory and applications of digital processing of speech signals. Mathematical models of human speech production and perception mechanisms, speech analysis/synthesis. Techniques include linear prediction, filter-bank models, and homomorphic filtering. Applications to speech synthesis, automatic recognition, and hearing aids. Letter grading.

**214B. Advanced Topics in Speech Processing (4)** Lecture, three hours; discussion, one hour; computer assignments, two hours; outside study, six hours. Requisite: course M214A. Advanced techniques used in various speech-processing applications, with focus on speech recognition by humans and machine. Physiology and psychoacoustics of human perception.

Dynamic Time Warping (DTW) and Hidden Markov Models (HMM) for automatic speech recognition systems, pattern classification, and search algorithms. Aids for hearing impaired. Letter grading.

**215A. Analog Integrated Circuit Design (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 115B. Analysis and design of analog integrated circuits. MOS and bipolar device structures and models, single-stage and differential amplifiers, noise, feedback, operational amplifiers, offset and distortion, sampling devices and discrete-time circuits, bandgap references. Letter grading.

**215B. Advanced Digital Integrated Circuits (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 115C, M216A. Analysis and comparison of modern logic families. VLSI memories (SRAM, DRAM, and ROMs). Accuracy of various simulation models and simulation methods for digital circuits. Letter grading.

**215C. Analysis and Design of RF Circuits and Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 215A. Principles of RF circuit and system design, with emphasis on monolithic implementation in VLSI technologies. Basic concepts, communications background, transceiver architectures, low-noise amplifiers and mixers, oscillators, frequency synthesizers, power amplifiers. Letter grading.

**215D. Analog Microsystem Design (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 215A. Analysis and design of data conversion interfaces and filters. Sampling circuits and architectures, D/A conversion techniques, A/D converter architectures, building blocks, precision techniques, discrete- and continuous-time filters. Letter grading.

**215E. Signaling and Synchronization (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 215A, M216A. Analysis and design of circuits for synchronization and communication for VLSI systems. Use of both digital and analog design techniques to improve data rate of electronics between functional blocks, chips, and systems. Advanced clocking methodologies, phase-locked loop design for clock generation, and high-performance wireline transmitters, receivers, and timing recovery circuits. Letter grading.

**216A. Design of VLSI Circuits and Systems (4)** (Same as Computer Science M258A.) Lecture, four hours; discussion, two hours; laboratory, four hours; outside study, two hours. Requisites: courses M16 or Computer Science M51A, and 115A. Recommended: course 115C. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on chips. Letter grading.

**216B. VLSI Signal Processing (4)** Lecture, four hours; outside study, eight hours. Advanced concepts in VLSI signal processing, with emphasis on architecture design and optimization within block-based description that can be mapped to hardware. Fundamental concepts from digital signal processing (DSP) theory, architecture, and circuit design applied to complex DSP algorithms in emerging applications for personal communications and healthcare. Letter grading.

**216C. LSI in Computer System Design (4)** (Same as Computer Science M258C.) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course M216A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. Letter grading.

**217. Biomedical Imaging (4)** (Same as Bioengineering M217.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 114 or 211A. Optical imaging modalities in biomedicine. Other nonoptical imaging modalities discussed briefly for comparison purposes. Letter grading.

**218. Network Economics and Game Theory (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Discussion of how different cooperative and noncooperative games among agents can be constructed to model, analyze, optimize, and shape emerging interactions among users in different networks and system settings. How strategic agents can successfully compete with each other for limited and time-varying resources by optimizing their decision process and learning from their past interaction with other agents. To determine their optimal actions in these distributed, informationally decentralized environments, agents need to learn and model directly or implicitly other agents' responses to their actions. Discussion of existing multiagent learning techniques and learning in games, including adjustment processes for learning equilibria, fictitious play, regret-learning, and more. Letter grading.

**219. Large-Scale Data Mining: Models and Algorithms (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction of variety of scalable data modeling tools, both predictive and causal, from different disciplines. Topics include supervised and unsupervised data modeling tools from machine learning, such as support vector machines, different regression engines, different types of regularization and kernel techniques, deep learning,

and Bayesian graphical models. Emphasis on techniques to evaluate relative performance of different methods and their applicability. Includes computer projects that explore entire data analysis and modeling cycle: collecting and cleaning large-scale data, deriving predictive and causal models, and evaluating performance of different models. Letter grading.

**221A. Physics of Semiconductor Devices I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Physical principles and design considerations of junction devices. Letter grading.

**221B. Physics of Semiconductor Devices II (4)** Lecture, four hours; outside study, eight hours. Principles and design considerations of field effect devices and charge-coupled devices. Letter grading.

**221C. Microwave Semiconductor Devices (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Physical principles and design considerations of microwave solid-state devices: Schottky barrier mixer diodes, IMPATT diodes, transferred electron devices, tunnel diodes, microwave transistors. Letter grading.

**222. Integrated Circuits Fabrication Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 2. Principles of integrated circuits fabrication processes. Technological limitations of integrated circuits design. Topics include bulk crystal and epitaxial growth, thermal oxidation, diffusion, ion-implantation, chemical vapor deposition, dry etching, lithography, and metallization. Introduction of advanced process simulation tools. Letter grading.

**223. Solid-State Electronics I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Recommended requisite: course 270. Energy band theory, electronic band structure of various elementary, compound, and alloy semiconductors, defects in semiconductors. Recombination mechanisms, transport properties. Letter grading.

**224. Solid-State Electronics II (4)** Lecture, four hours; outside study, eight hours. Requisite: course 223. Techniques to solve Boltzmann transport equation, various scattering mechanisms in semiconductors, high field transport properties in semiconductors, Monte Carlo method in transport. Optical properties. Letter grading.

**225. Physics of Semiconductor Nanostructures and Devices (4)** Lecture, four hours; outside study, eight hours. Requisite: course 223. Theoretical methods for circulating electronics and optical properties of semiconductor structures. Quantum size effects and low-dimensional systems. Application to semiconductor nanometer scale devices, including negative resistance diodes, transistors, and detectors. Letter grading.

**229. Seminar: Advanced Topics in Solid-State Electronics (4)** Seminar, four hours; outside study, eight hours. Requisites: courses 223, 224. Current research areas, such as radiation effects in semiconductor devices, diffusion in semiconductors, optical and microwave semiconductor devices, nonlinear optics, and electron emission. Letter grading.

**229S. Advanced Electrical Engineering Seminar (2)** Seminar, two hours; outside study, six hours. Preparation: successful completion of PhD major field examination. Seminar on current research topics in solid-state and quantum electronics (Section 1) or in electronic circuit theory and applications (Section 2). Students report on tutorial topic and on research topic in their dissertation area. May be repeated for credit. S/U grading.

**230A. Detection and Estimation in Communication (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Applications of estimation and detection concepts in communication and signal processing; random signal and noise characterizations by analysis and simulations; mean square (MS) and maximum likelihood (ML) estimations and algorithms; detection under ML, Bayes, and Neyman/Pearson (NP) criteria; signal-to-noise ratio (SNR) and error probability evaluations. Introduction to Monte Carlo simulations. Letter grading.

**230B. Digital Communication Systems (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 132A, 230A. Principles and practical techniques for communication at physical and multiple access layers. Review of communications over Gaussian channel. Synchronization and adaptive equalization. Nonlinear impairments in radio transceivers. Wireless channel models, diversity techniques, and link budgets. Modulations for wireless channels. Multi-antenna methods. Wireless multiple access and resource allocation techniques. Scalable approaches to meeting wireless data rate demand. Letter grading.

**230C. Signal Processing in Communications (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 230A. Concepts and implementations of signal processing in communication and signal processing systems. Spectral analysis using Fourier transform and windowing, parametric modeling, eigen-decomposition methods, time-frequency analysis, wavelet trans-

form, and sub-band processing. Array processing using beamforming for SNIR enhancement, smart antenna, and source separation and localization. Introduction to compressive sampling and applications. Letter grading.

**230D. Algorithms and Processing in Communication Systems (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 230A. Review of computational linear algebra methods on QRD, eigen- and singular-value decompositions, and LS estimation with applications to estimation and detection in communication, radar, speech, image, and array processing systems. Systolic and parallel algorithms and VLSI architectures for high performance and high throughput real-time estimation, detection, decoding, and beamforming applications. Letter grading.

**231A. Information Theory (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Fundamentals information compression, transmission, processing, and learning. Topics include limits and algorithms for lossless data compression, connections to model estimation and learning, channel capacity, rate versus distortion in lossy compression, and basics of information theory for networks. Letter grading.

**231B. Network Information Theory (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 231A. Point-to-point multiple-input, multiple-output (MIMO) wireless channels: capacity and outage; single-hop networks: multiple access, broadcast, interference, and relay channels; channels and sources with side-information; basics of multiterminal lossy data compression; basics of network information flow over general noisy networks. Letter grading.

**231E. Channel Coding Theory (4)** Lecture, four hours; outside study, eight hours. Requisite: course 131A. Fundamentals of error control codes and decoding algorithms. Topics include block codes, convolutional codes, trellis codes, and turbo codes. Letter grading.

**232A. Stochastic Modeling with Applications to Telecommunication Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 131A. Stochastic processes as applied to study of telecommunication systems, traffic engineering, business, and management. Discrete-time and continuous-time Markov chain processes. Renewal processes, regenerative processes, Markov-renewal, semi-Markov and semiregenerative stochastic processes. Decision and reward processes. Applications to traffic and queueing analysis of basic telecommunications and computer communication networks, Internet, and management systems. Letter grading.

**232B. Queueing Systems and Intelligent Transportation Networks (4)** Lecture, four hours; outside study, eight hours. Requisite: course 131A or equivalent. Modeling, analysis, and design of queueing systems; traffic management and design of intelligent transportation systems, communications networks, autonomous vehicular networks, business and management systems. Markovian and non-Markovian queueing systems and networks. Applications to traffic engineering, transportation and autonomous vehicular systems; computer communications, management and business systems. Letter grading.

**232D. Communications Networking and Traffic Management for Autonomous Mobile Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 131A or equivalent. Analysis, design, and traffic management of autonomous mobile systems. Telecommunication networks, mobile wireless networks, and multiple-access communication systems. Networking architectures, multiple-access communications under adaptive quality-of-service metrics. Switching, routing, networking protocols, and Internet. Autonomous mobile networked systems. Cellular wireless networks, WiFi mesh networks, peer-to-peer mobile ad hoc wireless networks. Autonomous transportation networked systems. Traffic management architectures in support of self-driving cars. Smart grid networks. Adaptive multimedia streaming over mobile wireless networks. Embedded sensor networks. Energy and pollution aware sustainable networking. Security mechanisms. Letter grading.

**232E. Large Scale Social and Complex Networks: Design and Algorithms (4)** Lecture, four hours; recitation, one hour; outside study, seven hours. Modeling and design of large-scale complex networks, including social networks, peer-to-peer file-sharing networks, World Wide Web, and gene networks. Modeling of characteristic topological features of complex networks, such as power laws and percolation threshold. Mining topology to design algorithms for various applications, such as e-mail spam detection, friendship recommendations, viral popularity, and epidemics. Introduction to network algorithms, computational complexity, and nondeterministic, polynomial-time completeness. Letter grading.

**233. Wireless Communications System Design, Modeling, and Implementation (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 113. Covers algorithms, architectures, and implementation for radio transceivers, physical, and network layer functionalities. Topics include wireless channel modeling, single-carrier and multi-carrier systems, multiple antenna systems, radio impairments and their correction, architectures and circuits design trade-offs, wideband spectrum sensing, wideband

signaling, cognitive radio, massive multiple-input, multiple-output (MIMO) systems, and applications in 5G and Internet of things (IoT) communication. Letter grading.

**234A. Network Coding Theory and Applications (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Algebraic approach and main theorem in network coding, combinatorial approach and alphabet size, linear programming approach and throughput benefits, network code design algorithms, secure network coding, network coding for wireless, other applications. Letter grading.

**235A. Mathematical Foundations of Data Storage Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A or equivalent. Research developments in new mathematical techniques for emerging large-scale, ultra-reliable, fast, and affordable data storage systems. Topics include, but are not limited to, graph-based codes and algebraic codes and decoders for modern storage devices (e.g., Flash), rank modulation, rewriting codes, algorithms for data deduplication and synchronization, and redundant array of independent disks (RAID) systems. Letter grading.

**236A. Linear Programming (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Mathematics 115A or equivalent knowledge of linear algebra. Basic graduate course in linear optimization. Geometry of linear programming. Duality. Simplex method. Interior-point methods. Decomposition and large-scale linear programming. Quadratic programming and complementary pivot theory. Engineering applications. Introduction to integer linear programming and computational complexity theory. Letter grading.

**236B. Convex Optimization (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 236A. Introduction to convex optimization and its applications. Convex sets, functions, and basics of convex analysis. Convex optimization problems (linear and quadratic programming, second-order cone and semidefinite programming, geometric programming). Lagrange duality and optimality conditions. Applications of convex optimization. Unconstrained minimization methods. Interior-point and cutting-plane algorithms. Introduction to nonlinear programming. Letter grading.

**236C. Optimization Methods for Large-Scale Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 236B. First-order algorithms for convex optimization: subgradient method, conjugate gradient method, proximal gradient and accelerated proximal gradient methods, block coordinate descent. Decomposition of large-scale optimization problems. Augmented Lagrangian method and alternating direction method of multipliers. Monotone operators and operator-splitting algorithms. Second-order algorithms: inexact Newton methods, interior-point algorithms for conic optimization. Letter grading.

**237. Dynamic Programming (4)** (Same as Mechanical and Aerospace Engineering M276.) Lecture, four hours; outside study, eight hours. Recommended requisite: course 232A or 236A or 236B. Introduction to mathematical analysis of sequential decision processes. Finite horizon model in both deterministic and stochastic cases. Finite-state infinite horizon model. Methods of solution. Examples from inventory theory, finance, optimal control and estimation, Markov decision processes, combinatorial optimization, communications. Letter grading.

**238. Multimedia Communications and Processing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Key concepts, principles, and algorithms of online learning and learning how to make decisions under uncertainty in broad context, including Markov decision processes, optimal stopping, reinforcement learning, structural results for online learning, multiarmed bandits learning, multiagent learning, multiagent deep learning. Letter grading.

**239AS. Special Topics in Signals and Systems (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Special topics in one or more aspects of signals and systems, such as communications, control, image processing, information theory, multimedia, computer networking, optimization, speech processing, telecommunications, and VLSI signal processing. May be repeated for credit with topic change. S/U or letter grading.

**239BS. Seminar: Signals and Systems (4)** Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of signals and systems, such as communications, control, image processing, information theory, multimedia, computer networking, optimization, speech processing, telecommunications, and VLSI signal processing. May be repeated for credit with topic change. S/U grading.

**240A. Linear Dynamic Systems (4)** (Same as Chemical Engineering M280A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: course 141 or Mechanical and Aerospace Engineering 171A. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear al-

gebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

**240C. Optimal Control (4)** (Same as Chemical Engineering M280C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: course 240B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

**241A. Stochastic Processes (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Review of basic probability, axiomatic development, expectation, convergence of random processes: stationarity, power spectral density. Response of linear systems to random inputs. Basics of estimation. Special random processes, Markov processes, martingales, etc. Letter grading.

**242A. Nonlinear Dynamic Systems (4)** (Same as Chemical Engineering M282A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M240A or Chemical Engineering M280A or Mechanical and Aerospace Engineering M270A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

**C243A. Neural Signal Processing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 131A, Mathematics 33A. Topics include fundamental properties of electrical activity in neurons; technology for measuring neural activity; spiking statistics and Poisson processes; generative models and classification; regression and Kalman filtering; principal components analysis, factor analysis, and expectation maximization. Concurrently scheduled with course C143A. Letter grading.

**246. Foundations of Statistical Machine Learning (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: course 131A, Mathematics 33A. Introduction to foundations of statistical machine learning. Overview of several widely used learning algorithms including logistic and linear regression, kernel methods and support vector machine (SVM), ensemble learning methods, decisions trees and nearest neighbor classifiers. Connections to information theory through probably approximately correct (PAC) learning, stability, bias-complexity trade-off, structural risk minimization, minimum description length (MDL), and universal learning. Introduction to representation learning with topics including unsupervised learning, clustering, (non-linear) dimensionality reduction, sketching, parametric distribution estimation including Gaussian mixtures, expectation maximization, non-parametric distribution estimation, property testing and neural networks focused on distribution sampling (variational autoencoders \_VAEs\_, generative adversarial networks \_GANs\_). Discussion of reinforcement learning. Letter grading.

**C247. Neural Networks and Deep Learning (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 131A, 133A or 205A, and M146, or equivalent. Review of machine learning concepts; maximum likelihood; supervised classification; neural network architectures; backpropagation; regularization for training neural networks; optimization for training neural networks; convolutional neural networks; practical CNN architectures; deep learning libraries in Python; recurrent neural networks, backpropagation through time, long short-term memory and gated recurrent units; variational autoencoders; generative adversarial networks; adversarial examples and training. Concurrently scheduled with course C147. Letter grading.

**248S. Seminar: Systems, Dynamics, and Control Topics (2)** (Same as Chemical Engineering M297 and Mechanical and Aerospace Engineering M299A.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

**250B. Microelectromechanical Systems (MEMS) Fabrication (4)** (Same as Bioengineering M250B and Mechanical and Aerospace Engineering M280B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course M153. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

**252. Microelectromechanical Systems (MEMS) Device Physics and Design (4)** (Same as Bioengineering M252 and Mechanical and Aerospace Engineering M282.) Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

**255. Neuroengineering (4)** (Same as Bioengineering M260 and Neuroscience M206.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 5C. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

**256A. Evaluation of Research Literature in Neuroengineering (2)** (Same as Bioengineering M261A and Neuroscience M212A.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**256B. Evaluation of Research Literature in Neuroengineering (2)** (Same as Bioengineering M261B and Neuroscience M212B.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**256C. Evaluation of Research Literature in Neuroengineering (2)** (Same as Bioengineering M261C and Neuroscience M212C.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**257. Nanoscience and Technology (4)** (Same as Mechanical and Aerospace Engineering M287.) Lecture, four hours; outside study, eight hours. Introduction to fundamentals of nanoscale science and technology. Basic physical principles, quantum mechanics, chemical bonding and nanostructures, top-down and bottom-up (self-assembly) nanofabrication; nanocharacterization; nanomaterials, nanoelectronics, and nanobiosensing technology. Introduction to new knowledge and techniques in nano areas to understand scientific principles behind nanotechnology and inspire students to create new ideas in multidisciplinary nano areas. Letter grading.

**260A. Advanced Engineering Electrodynamics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 101B, 162A. Advanced treatment of concepts in electrodynamics and their applications to modern engineering problems. Vector calculus in generalized coordinate system. Solutions of wave equation and special functions. Reflection, transmission, and polarization. Vector potential, duality, reciprocity, and equivalence theorems. Scattering from cylinder, half-plane, wedge, and sphere, including radar cross-section characterization. Green's functions in electromagnetics and dyadic calculus. Letter grading.

**260B. Advanced Engineering Electrodynamics (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 101B, 162A, 260A. Advanced treatment of concepts and numerical techniques in electrodynamics and their applications to modern engineering problems. Differential geometry of curves and surfaces. Geometrical optics and geometrical theory of diffraction. Physical optics techniques. Asymptotic techniques and uniform theories. Integral equations in electromagnetics. Numerical techniques based on method of moments. Letter grading.

**261. Microwave and Millimeter Wave Circuits (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 163A. Rectangular and circular waveguides, microstrip, stripline, finline, and dielectric waveguide distributed circuits, with applications in microwave and millimeter wave integrated circuits. Substrate materials, surface wave phenomena. Analytical methods for discontinuity effects. Design of passive microwave and millimeter wave circuits. Letter grading.

**262. Antenna Theory and Design (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 162A. Antenna patterns. Sum and difference patterns. Optimum designs for rectangular and circular apertures. Arbitrary side lobe topography. Discrete arrays. Mutual coupling. Design of feeding networks. Letter grading.

**263. Reflector Antennas Synthesis, Analysis, and Measurement (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 260A, 260B. Reflector pattern analysis techniques. Single and multireflector antenna configurations. Reflector synthesis techniques. Reflector feeds. Reflector tolerance studies, including systematic and random errors. Array-fed reflector antennas. Near-field measurement techniques. Compact range concepts. Microwave diagnostic techniques. Modern satellite and ground antenna applications. Letter grading.

**266. Computational Methods for Electromagnetics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 162A, 163A. Computational techniques for partial differential and integral equations: finite-difference, finite-element, method of moments. Applications include transmission lines, resonators, integrated circuits, solid-state device modeling, electromagnetic scattering, and antennas. Letter grading.

**270. Applied Quantum Mechanics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Preparation: modern physics (or course 123A), linear algebra, and ordinary differential equations courses. Principles of quantum mechanics for applications in lasers, solid-state physics, and nonlinear optics. Topics include eigenfunction expansions, observables, Schrödinger equation, uncertainty principle, central force problems, Hilbert spaces, WKB approximation, matrix mechanics, density matrix formalism, and radiation theory. Letter grading.

**271. Classical Laser Theory (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 170A. Microscopic and macroscopic laser phenomena and propagation of optical pulses using classical formalism. Letter grading.

**272. Dynamics of Lasers (4)** Lecture, four hours; outside study, eight hours. Requisite: course 271. Ultrashort laser pulse characteristics, generation, and measurement. Gain switching, Q switching, cavity dumping, active and passive mode locking. Pulse compression and soliton pulse formation. Nonlinear pulse generation: soliton laser, additive-pulse mode locking, and parametric oscillators. Pulse measurement techniques. Letter grading.

**273. Nonlinear Photonics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 170A. Recommended: course 271. Nonlinear optical susceptibilities. Coupled-wave and coupled-mode theories. Crystal optics, electro-optics, and magneto-optics. Nonlinear optical interactions, sum- and difference-frequency generation, harmonic and parametric generation, stimulated Raman and Brillouin scattering, field-induced index changes and self-phase modulation. Nonlinear photonic devices. Nonlinear guided-wave photonics and devices. Letter grading.

**274. Optical Communication and Sensing Design (4)** Lecture, three hours; outside study, nine hours. Requisites: courses 170A and 170B or equivalent. Top-down introduction to physical layer design in fiber optic communication systems, including Telecom, Datacom, and CATV. Fundamentals of digital and analog optical communication systems, fiber transmission characteristics, and optical modulation techniques, including direct and external modulation and computer-aided design. Architectural-level design of fiber optic transceiver circuits, including preamplifier, quantizer, clock and data recovery, laser driver, and predistortion circuits. Letter grading.

**275. Micro- and Nanoscale Biosensing for Molecular Diagnostics (4)** (Same as Bioengineering M273.) Lecture, four hours; discussion, one hour; outside study, seven hours. Covers state-of-art and emerging biosensors in context of molecular diagnostics. Students learn relevant biology and biochemistry pertinent to molecular diagnostics. Students gain thorough understanding of interfaces between bioparticles, biofluids, and electronics. Topics include biosensor performance parameters, modes of detection, sample preparation challenges, microfluidics, and emerging wearable biosensing platforms, as well as proteomics, genomics, and DNA sequencing technologies. Letter grading.

**279AS. Special Topics in Physical and Wave Electronics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Special topics in one or more aspects of physical and wave electronics, such as electromagnetics, microwave and millimeter wave circuits, photonics and optoelectronics, plasma electronics, microelectromechanical systems, solid state, and nanotechnology. May be repeated for credit with topic change. S/U or letter grading.

**279BS. Seminar: Physical and Wave Electronics. (2 to 4)** Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of physical and wave electronics, such as electromagnetics, microwave and millimeter wave circuits, photonics and optoelectronics, plasma electronics, microelectromechanical systems, solid state, and nanotechnology. May be repeated for credit with topic change. S/U grading.

**279CS. Clean Green IGERT Brown-Bag Seminar (1)** Seminar, one hour. Required of students in Clean Energy for Green Industry (IGERT) Research. Literature seminar presented by graduate students and experts from around country who conduct research in energy harvest, storage, and conservation. S/U grading.

**CM282. Science, Technology, and Public Policy (4)** (Same as Public Policy CM282.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM182. Letter grading.

eration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM182. Letter grading.

**285A. Plasma Waves and Instabilities (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 101A, and M185 or Physics M122. Wave phenomena in plasmas described by macroscopic fluid equations. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydromagnetic waves, drift waves. Rayleigh/Taylor, Kelvin/Helmholtz, universal, and streaming instabilities. Application to experiments in fully and partially ionized gases. Letter grading.

**285B. Advanced Plasma Waves and Instabilities (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M185, and 285A or Physics 222A. Interaction of intense electromagnetic waves with plasmas: waves in inhomogeneous and bounded plasmas, nonlinear wave coupling and damping, parametric instabilities, anomalous resistivity, shock waves, echoes, laser heating. Emphasis on experimental considerations and techniques. Letter grading.

**287. Fusion Plasma Physics and Analysis (4)** (Same as Mechanical and Aerospace Engineering M237B.) Lecture, four hours; outside study, eight hours. Fundamentals of plasmas at thermonuclear burning conditions. Fokker/Planck equation and applications to heating by neutral beams, RF, and fusion reaction products. Bremsstrahlung, synchrotron, and atomic radiation processes. Plasma surface interactions. Fluid description of burning plasma. Dynamics, stability, and control. Applications in tokamaks, tandem mirrors, and alternate concepts. Letter grading.

**293. Intellectual Property for Technology Entrepreneurs and Managers (2)** (Same as Management M247.) Seminar, two hours; outside study, four hours. Introduction to intellectual property (IP) in context of technology products and markets. Topics include best practices to put in place before product development starts, how to develop high-value patent portfolios, patent licensing, offensive and defensive IP litigation considerations, trade secrets, opportunities and pitfalls of open source software, trademarks, managing copyright in increasingly complex content ecosystems, and adopting IP strategies to globalized marketplaces. Includes case studies inspired by complex IP questions facing technology companies today. S/U or letter grading.

**295. Academic Technical Writing for Electrical Engineers (3)** Seminar, three hours. Designed for electrical engineering PhD students who have completed preliminary examinations. Students read models of good writing and learn to make rhetorical observations and writing decisions, improve their academic and technical writing skills by writing and revising conference and journal papers, and practice writing for and speaking to various audiences, including potential students, engineers outside their specific fields, and nonengineers (colleagues outside field, policymakers, etc.). Students write in variety of genres, all related to their professional development as electrical engineers. Emphasis on writing as vital way to communicate precise technical and professional information in distinct contexts, directly resulting in specific outcomes. S/U grading.

**296. Seminar: Research Topics in Electrical Engineering (2)** Seminar, two hours; outside study, four hours. Advanced study and analysis of current topics in electrical engineering. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**297. Seminar Series: Electrical Engineering (1)** Seminar, 90 minutes; outside study, 90 minutes. Limited to graduate electrical engineering students. Weekly seminars and discussion by invited speakers on research topics of heightened interest. S/U grading.

**298. Seminar: Engineering. (2 to 4)** Seminar, to be arranged. Limited to graduate electrical engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. S/U or letter grading.

**299. MS Project Seminar (4)** Seminar, to be arranged. Required of all MS students not in thesis option. Supervised research in small groups or individually under guidance of faculty mentor. Regular meetings, culminating report, and presentation required. Individual contract required; enrollment petitions available in Office of Graduate Student Affairs. S/U grading.

**495. Teaching Preparation Seminar: Teaching and Writing Pedagogies for Electrical Engineers (2)** (Same as English Composition M495K.) Seminar, two hours. Limited to graduate electrical engineering students. Required of all departmental teaching assistants (TAs). May be taken concurrently while holding a TA appointment. Seminar on pedagogy and logistics of being a TA with emphasis on student-centered teaching, clear communication, and multimodal teaching and learning. S/U grading.



**596. Directed Individual or Tutorial Studies (2 to 8)** Tutorial, to be arranged. Limited to graduate electrical engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination (2 to 12)** Tutorial, to be arranged. Limited to graduate electrical engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examinations (2 to 16)** Tutorial, to be arranged. Limited to graduate electrical engineering students. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination (2 to 16)** Tutorial, to be arranged. Limited to graduate electrical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis (2 to 12)** Tutorial, to be arranged. Limited to graduate electrical engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 16)** Tutorial, to be arranged. Limited to graduate electrical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

# Engineering Schoolwide Programs

## Engineering Courses

### Lower Division

**1A. Introduction to Engineering Design: Variable Topics (2)** Laboratory, three hours; outside study, three hours. Introduction to engineering design while building teamwork and communication skills. Examination of engineering majors and careers. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Specific project details and relevant majors explored vary with instructor. May be repeated once for credit with topic or instructor change. Letter grading.

**1AR. Introduction to Engineering Design: Autonomous Rover (2)** Laboratory, three hours; outside study, three hours. Students use concepts and tools in mechanical engineering, electrical engineering, and computer science to design and build rovers that operate under wireless control, and can autonomously navigate and respond to environmental cues. Students design robot chassis, connect motors and control/sensory electronics, and program system to map its environment and achieve mission objectives. Student team projects culminate in final competition and oral presentation. Letter grading.

**1BI. Introduction to Engineering Design: Bionics (2)** Laboratory, three hours; outside study, three hours. Students use concepts in mechanical engineering, bioengineering, electrical engineering, and computer science to develop a robotic hand/arm that can complete series of unique tasks. Lecture topics cover mechanical design, bionics, rehabilitation, musculoskeletal systems modeling, controls, motors and actuation, and programming. Student projects culminate in oral presentation and final competition that tests versatility and robustness of robotic arm. Letter grading.

**1CO. Introduction to Engineering Design: Coffee (2)** Laboratory, three hours; outside study, three hours. Introduction to concepts and techniques in chemical engineering, computer-aided design, 3D printing, circuitry, mass and heat transfer, process control, and machining. Nonmathematical introduction to how engineers approach and solve problems, as elucidated by process of roasting and brewing coffee. Various laboratory experiments test how different physical and chemical processes affect sensory qualities of coffee. Study culminates in competition and presentation to peers and guests. Letter grading.

**1CR. Introduction to Engineering Design: Combat Robotics (2)** Laboratory, three hours; outside study, three hours. Introduction to practical and theoretical engineering concepts involved in different combat robot designs. Student teams learn computer-aided design, manufacturing, and basic electronics to design, build, and fight one-pound combat robots. No prior experience or coursework needed. Letter grading.

**1DR. Introduction to Engineering Design: Drones (2)** Laboratory, three hours; outside study, three hours. Introduction to autonomous drone engineering, exploring airframe structure and software controls. Airframe topics include computer-aided design, manufacturing, drone propulsion, and electronics. Software controls topics include implementing professional flight software, data analysis, and real-time system responses. Students work in teams to design, build, and test drone that competes in task-based competition. Students present and explain their design choices. No prior experience or coursework required. Study led by experienced undergraduate members of UCLA unmanned aerial systems group. Letter grading.

**1EC. Introduction to Engineering Design: Electrocardiogram (2)** Laboratory, three hours; outside study, three hours. Students learn and use concepts and techniques in electrical circuit design and analysis, cardiac electrophysiology, biophysics, microcontrollers, and computer programming. Students work in teams to design, construct, and test circuit boards capable of measuring human electrocardiograms by capturing data with microcontroller, with computer analysis and display. Students present their designs orally and in writing. Letter grading.

**1GD. Introduction to Engineering Design: Game Development in Unity (2)** Laboratory, three hours; outside study, three hours. Study covers basics of C# programming language, Unity architecture, input, physics, gameplay logic, game design documents, and more. Students create their own original game from scratch, playable by any user with computer and Internet connection. No prior experience with college mathematics, general programming, or game development is assumed. Letter grading.

**1GK. Introduction to Engineering Design: Go-Karts (2)** Laboratory, three hours; outside study, three hours. Students learn and use concepts and techniques in computer-aided design, finite element analysis, machining, electric motor performance, steering linkages, and general mechanical design and assembly to work in teams and construct and test go-karts. Students present their designs orally and in writing. Letter grading.

**1IT. Introduction to Engineering Design: Internet of Things (2)** (Formerly numbered 96I.) Lecture, one hour; laboratory, one hour; outside study, four hours. Recommended for undergraduate Aerospace Engineering, Bioengineering, Computer Science, Electrical Engineering, and Mechanical Engineering majors. Introduction to engineering design while building teamwork and communication skills and examination of engineering majors offered at UCLA and of engineering careers. Hands-on experience with state-of-art Internet of things (IoT) technology to offer students opportunity to rapidly develop innovative and inspiring systems that provide ideal introduction to computing systems and IoT applications specific to their major field. IoT technology has become one of the most important advances in technology history with applications ranging from wearable devices for healthcare to residential monitoring systems, natural resource protection and management, intelligent vehicles and transportation systems, robotics systems, and energy conservation. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Letter grading.

**1ML. Introduction to Engineering Design: Machine Learning (2)** Laboratory, three hours; outside study, three hours. Students learn basics of machine learning using popular programming language Python. Lectures cover topics in Python, machine learning, and LaTeX. Laboratory assignments challenge students to explore and engage with content from each lecture. Homework assignments culminate in final project in which students develop and train neural network image classifier, built using PyTorch, that performs significantly better than random guessing. Students report on how they chose components of their neural network. Letter grading.

**1PH. Introduction to Engineering Design: 3D Pharmaceuticals (2)** Laboratory, three hours; outside study, three hours. 3D pharming is emerging field that tries to achieve more patient-specific drug dosages and delivery rates, which can be tailored towards each patient's age, weight, height, genotype, etc. This direction in medicine has become possible with development of 3D-printed pill capsules and laser print bioinks—aqueous hydrogel formulations with correct mechanical properties to interact with 3D printer, on demand. Bioinks are able to dissolve drugs and polymerize into solid to form drug delivery vehicle. Students learn basic fundamentals of how to 3D print pill capsule and polymerize hydrogel within it. Students are guided through process of designing research experiment, analyzing data, and presenting their findings to others. Letter grading.

**1PL. Introduction to Engineering Design: Planes (2)** Laboratory, three hours; outside study, three hours. Introduction to basics of airplane engineering. Students work in teams to design and construct foam-and-3D-printed, fixed-wing aircraft to complete two missions. Students learn basic physics of aerodynamics, applications of MATLAB and Solidworks, how to use figure of merit (FOM) charts to make design decisions, and manufacturing techniques. Study led by experienced undergraduate members of UCLA Design Build Fly group. No prior experience or coursework needed. Letter grading.

**1RK. Introduction to Engineering Design: Rockets (2)** Laboratory, three hours; outside study, three hours. Introduction to rocket engineering, exploring launch vehicle structure, trajectory, stability, and propulsion. Topics include computer-aided design, structural analysis, conventional and additive manufacturing, aerodynamic analysis, flight dynamics, and electronics. Students work in teams to design, build, test, and launch solid-propellant rockets. Students present and explain their design choices. No prior experience or coursework required. Course led by experienced undergraduate members of UCLA rocket engineering club. Letter grading.

**1UW. Introduction to Engineering Design: Underwater Robotics (2)** Laboratory, three hours; outside study, three hours. Students develop skills in computer-aided design, 3D printing, mechanical design, electronics, and manufacturing. These concepts are applied to team-based design and construction of controllable underwater robots. Students design chassis, electronics bay, and how to seal robot. Students team projects culminate in oral presentation and underwater obstacle course competition. Letter grading.

**1XP. Introduction to Community-Engaged Engineering Design: Variable Topics (2)** Laboratory, two hours; outside study, four hours. Students work in small groups on projects that address the needs of a community partner. Potential projects include measuring environmental pollutants, building homes, educating local middle school students, and other activities. May be repeated for credit. Letter grading.

**2. Technology and Society (2)** Lecture, two hours; discussion, one hour; outside study, three hours. Introduction of broader societal opportunities, impacts, and challenges associated with technology. Drawing from historical

and contemporary examples, consideration of some of ethical, policy, and legal questions spurred by rapid technological change. Development of perspectives to take broad, contextualized view of role of technology in society. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. First-Year Engineering Transition Bridge (2)** Seminar, 18 hours (two weeks). Designed primarily for new students to help them understand UCLA, its culture, structure (quarter system), and academic policies; and to facilitate their transition from high school to college. Examination of research on first-year experience of college students, studying at UCLA versus high school, policies and procedures, and campus resources. Advanced preparation and early exposure to fall quarter mathematics, chemistry, and computer science curricula. Collaborative learning techniques and community-building activities are integral processes to both day and evening programs. Intensive classroom instruction and collaborative learning workshops. May be repeated for credit. Offered in summer only. P/NP grading.

**21. Computing Immersion Summer Experience (2)** Seminar, 18 hours (three weeks). Designed primarily for new students to help them understand UCLA, its culture, structure (quarter system), and academic policies; and to facilitate their transition from high school/community college to university. Designed to immerse incoming computing students in foundation concepts and principles of computer science, with focus on fundamental computer programming principles, methodologies, and techniques. Basic concepts of programming and C++/Java; computing language. Offered in summer only. P/NP grading.

**21. Computing Immersion Summer Experience (2)** Seminar, 18 hours (three weeks). Designed primarily for new students to help them understand UCLA, its culture, structure (quarter system), and academic policies; and to facilitate their transition from high school/community college to university. Designed to immerse incoming computing students in foundation concepts and principles of computer science, with focus on fundamental computer programming principles, methodologies, and techniques. Basic concepts of programming and C++/Java; computing language. Offered in summer only. P/NP grading.

**22. Summer Bridge Review for Enhancing Engineering Students (2)** Seminar, 18 hours (two weeks). Designed primarily for new students to help them understand UCLA, its culture, structure (quarter system), and academic policies; and to facilitate their transition from community college to university. Intensive introduction of advanced topics covered in upper-division engineering courses. May be repeated for credit. Offered in summer only. P/NP grading.

**23. Finding Industry Internship (2)** Seminar, two hours; outside study, four hours. Designed to engage engineering students in process of formal career development. Students learn about various components of internship/job application and practice preparing relevant materials. Prepares students for career-related social interactions. Development of skills and insights to successfully secure future opportunities, such as first industry internship. P/NP grading.

**24. Finding Undergraduate Research Opportunity (2)** Seminar, two hours; outside study, four hours. Designed to engage engineering students, primarily those without prior experience, in process of soliciting, securing, and beginning research. Students learn about various methods and resources used to obtain laboratory position. Exploration of opportunities and guidance on how to approach those openings. Offers students smooth transition into research laboratory. P/NP grading.

**25. Communicating Undergraduate Research Results (2)** Seminar, two hours; outside study, four hours. Designed to engage engineering students in process of communicating formal research. Students learn about various components required in publishing research. Offers templates and examples as guides for understanding technical presentations and writing. Development of skills and insights to successfully publish first research project. P/NP grading.

**26. Finding Entry-Level Job (2)** Seminar, two hours; discussion, two hours; outside study, two hours. Designed to engage engineering students in process of getting ready to graduate and need help joining workforce. Focus on how to apply to entry-level positions in engineering field, and specifically industries that value engineering degree over technical experience. Offers suggestions to overcome typical barriers students encounter in securing entry-level position including students with no industry internships, lack of professional network, lack of hands-on technical experience, low grade-point average, lack of student organization extracurricular activities, international students, Deferred Action for Childhood Arrivals (DACA) students, and other low-confidence students. Students learn about various components of job appli-

cation, practice preparing relevant materials, and prepare for career-related social interactions. Students develop skills and insights to successfully secure entry-level job as soon as possible after graduation. P/NP grading.

**87. Introduction to Engineering Disciplines (4)** Lecture, four hours; discussion, four hours; outside study, four hours. Introduction to engineering as professional opportunity for freshman students by exploring difference between engineering disciplines and functions engineers perform. Development of skills and techniques for academic excellence through team process. Investigation of national need underlying current effort to increase participation of historically underrepresented groups in U.S. technological work force. Letter grading.

**95. Internship Studies in Engineering. (1 to 4)** Tutorial, one hour. Limited to first years/sophomores. Internship studies course supervised by associate dean or designated faculty members. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated for credit. Individual contract with associate dean required. P/NP grading.

**96A. Introduction to Engineering Design (2)** Lecture, one hour; laboratory, one hour; outside study, four hours. Introduction to engineering design while building teamwork and communication skills and examination of engineering majors offered at UCLA and of engineering careers. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Specific project details and relevant majors explored vary with instructor. May be repeated once for credit with topic or instructor change. Letter grading.

**96B. Introduction to Engineering Design: Digital Imaging (2)** Lecture, one hour; laboratory, one hour; outside study, four hours. Recommended for undergraduate Aerospace Engineering, Bioengineering, Computer Science, Electrical Engineering, and Mechanical Engineering majors. Introduction to engineering design while building teamwork and communication skills and examination of engineering majors offered at UCLA and of engineering careers. Hands-on experience with state-of-art solid-state imaging devices. How to focus, expose, record, and manipulate telescopic images. Development of photographic technology from early chemical experiments to wide spread use of cell phone camera. Completion of hands-on engineering design projects, preparation of short report describing projects, and presentation of results. Letter grading.

**96C. Cybernetics: Introduction to Robotic Control Systems (2)** Lecture, one hour; laboratory, one hour; outside study, four hours. Complete introduction to robotics control systems that are critical and rapidly growing engineering technology with expanding societal impact. Designed to support entry-level students with primary principles of modern control systems. Students are provided with essential background in formal principles. Includes breakthrough technology providing hands-on experience with physical robotics control systems. Extensive use of graphical and animation methods to support understanding of mathematical concepts. Hands-on systems are provided in laboratory sections for each student for system design and characterization. Students connect personal computers to robotic control system and have real-time access for configuration and control. Convenient computing tools are provided to support each design method, as well as real-time visualization and performance characterization. Letter grading.

**96E. Introduction to Engineering Design: Electrocardiogram (2)** Lecture, 90 minutes; laboratory, 90 minutes; outside study, three hours. Students learn and use concepts and techniques in electrical circuit design and analysis, cardiac electrophysiology, biophysics, microcontrollers, and computer programming. Students work in teams to design, construct, and test circuit boards capable of measuring human electrocardiograms by capturing data with microcontroller, with computer analysis and display. Students present their designs orally and in writing. Letter grading.

**96G. Introduction to Engineering Design: Go-Karts (2)** Lecture, 90 minutes; laboratory, 90 minutes; outside study, three hours. Students learn and use concepts and techniques in computer-aided design, finite element analysis, machining, electric motor performance, steering linkages, and general mechanical design and assembly to work in teams and construct and test go-karts. Students present their designs orally and in writing. Letter grading.

**96R. Introduction to Engineering Design: Rockets (2)** Lecture, 90 minutes; laboratory, 90 minutes; outside study, three hours. Introduction to basic concepts in aerospace engineering, computer-aided design, finite element analysis, 3D printing, carbon fiber layup, telemetry, general mechanical design and assembly, and machine shop fabrication. Concepts applied to team-based design, construction, and testing of small 3D-printed rockets and larger, high-power rockets. Students present their designs orally and in writing, and evaluate their performance against other student teams. Rockets

fired from Mojave Desert launch site in class field trip. No prior experience or coursework needed. Study led by experienced undergraduate members of Bruin Rocket Project. Meetings, and design and fabrication homework, make use of Makerspace facilities and tools. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**102. Synthetic Biosystems and Nanosystems Design (4)** Lecture, four hours; outside study, eight hours. Requisites: course M101, Life Sciences 3. Introduction to current progress in engineering to integrate biosciences and nanosciences into synthetic systems, where biological components are reengineered and rewired to perform desirable functions in both intracellular and cell-free environments. Discussion of basic technologies and systems analysis that deal with dynamic behavior, noise, and uncertainties. Design project in which students are challenged to design novel biosystems and nanosystems for nontrivial task required. Letter grading.

**103. Environmental Nanotechnology: Implications and Applications (4)** (Same as Civil Engineering M165.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course M101. Introduction to potential implications of nanotechnology to environmental systems as well as potential application of nanotechnology to environmental protection. Technical contents include three multidisciplinary areas: (1) physical, chemical, and biological properties of nanomaterials, (2) transport, reactivity, and toxicity of nanoscale materials in natural environmental systems, and (3) use of nanotechnology for energy and water production, plus environmental protection, monitoring, and remediation. Letter grading.

**110. Introduction to Technology Management and Economics for Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Fundamental principles of micro-level (individual, firm, and industry) and macro-level (government, international) economics as they relate to technology management. How individuals, firms, and governments impact successful commercialization of high technology products and services. Letter grading.

**111. Introduction to Finance and Marketing for Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Critical components of finance and marketing research and practice as they impact management of technology commercialization. Internal (within firm) and external (in market-place) marketing and financing of high-technology innovation. Concepts include present value, future value, discounted cash flow, internal rate of return, return on assets, return on equity, return on investment, interest rates, cost of capital, and product, price, positioning, and promotion. Use of market research, segmentation, and forecasting in management of technological innovation. Letter grading.

**112. Laboratory to Market, Entrepreneurship for Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Critical components of entrepreneurship, finance, marketing, human resources, and accounting disciplines as they impact management of technology commercialization. Topics include intellectual property management, team building, market forecasting, and entrepreneurial finance. Students work in small teams studying technology management plans to bring new technologies to market. Students select from set of available technology concepts, many generated at UCLA, that are in need of plans for movement from laboratory to market. Letter grading.

**113. Product Strategy (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Designed for juniors/seniors. Introduction to current management concept of product development. Topics include product strategy, product platform, and product lines; competitive strategy, vectors of differentiation, product pricing, first-to-market versus fast-follower; growth strategy, growth through acquisition, and new ventures; product portfolio management. Case studies, class projects, group discussions, and guest lectures by speakers from industry. Letter grading.

**116. Statistics for Management Decisions (4)** Lecture, four hours; outside study, eight hours. Management as well as engineering decisions nearly always take place in environment characterized by uncertainty. Probability provides mathematical framework for understanding how to make rational decisions when outcomes of actions are uncertain. Application of probability to problem of reasoning from sample data, encompassing estimation, hypoth-

esis testing, and regression analysis. Discussion of specific analytical techniques needed in later courses in program. Development of basic understanding of statistical analysis. Letter grading.

**120. Entrepreneurship for Scientists and Engineers (2)** Seminar, two hours; outside study, four hours. Designed for seniors and graduate students. Identification of business opportunities and outline of basic requisites for viable business plans, followed by specific topics related to securing basic assets and resources needed to execute those plans. P/NP grading.

**160. Entrepreneurship and Venture Initiation for Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Not open to students with credit for Management 160. Focus on process and methodology for starting new venture. Introduction to entrepreneurship from perspective of entrepreneur. Examination of core concepts and frameworks on idea generation, market analysis, fundraising, corporate structures, and financial accounting for entrepreneurial endeavors. Focus on fundamentals of building business, and also emphasis on inherent experiential nature of entrepreneurship and need for constant learning on this subject. Letter grading.

**163. Entrepreneurship and New Product Development for Engineers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to juniors/seniors. Not open to students with credit for Management 163. Designed to deepen understanding of innovations and innovative processes related to creating new products. Inquiry into why, what, and how of making new products. New products are essential to any business (start-up or well-established) and thriving economies. Making successful new products requires various types of innovation. Availability of digital technologies and global outsources have accelerated pace of these innovations. Letter grading.

**170. Project-Based Technology Bootcamp for Social Impact (4)** Seminar, two hours; offsite work, five hours; outside study, five hours. Study of design thinking covering various business, technology, and interpersonal topics such as data analysis, user interface and user experience, how to pitch, and collaboration. Application of learned skills to define social-impact problem and build solution in student teams coached by industry professionals. May be repeated for credit. P/NP or letter grading.

**180. Engineering of Complex Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Designed for junior/senior engineering majors. Holistic view of engineering discipline, covering lifecycle of engineering, processes, and techniques used in industry today. Multidisciplinary systems engineering perspective in which aspects of electrical, mechanical, material, and software engineering are incorporated. Three specific case studies in communication, sensor, and processing systems included to help students understand these concepts. Special attention paid to link material covered to engineering curriculum offered by UCLA to help students integrate and enhance their understanding of knowledge already acquired. Motivation of students to continue their learning and reinforce lifelong learning habits. Letter grading.

**181EW. Ethical Negotiation in Technology (4)** Lecture, five hours; discussion, three hours; outside study, four hours. Requisite: English Composition 3, 3D, 3DS, 3E, or 3SL. Not open for credit to students with credit for course 182EW, 183EW, 185EW, or 188EW. Focuses on negotiation and complex ethical issues that emerge as result in areas such as biotechnology, information technology, nanotechnology, and energy technology. Discussion of nature of these issues; their ethical, legal, and social ramifications; and what society values in relation to these issues. Writing and revision of about 20 pages total, including two essays and one analysis of a negotiation from an ethical perspective. Satisfies engineering writing requirement. Letter grading.

**182EW. Technology and Law (4)** Lecture, four hours; discussion, three hours; outside study, five hours. Requisite: English Composition 3, 3D, 3DX, 3E, or 3SL. Not open for credit to students with credit for course 181EW, 183EW, 185EW, or 188EW. Places engineering in broader societal context through examination of some of key ethical, legal, and regulatory issues and frameworks relevant to design and deployment of emerging technology products and services. Historical examination of ethical and legal frameworks generally and in relation to technology. Exploration of series of specific contemporary technology-related topics to examine their broader ramifications. Topics may include driverless cars, algorithms and artificial intelligence, social media, digital privacy, and impact of technology on employment. Offers students tools enabling them to think more proactively and holistically about ethical and societal dimensions of their work as technology creators. Satisfies engineering writing requirement. Letter grading.

**183EW. Engineering and Society (4)** Lecture, four hours; discussion, three hours; outside study, five hours. Enforced requisite: English Composition 3, 3D, 3DS, 3E, or 3SL. Not open for credit to students with credit for course 181EW, 182EW, 185EW, or 188EW. Limited to sophomore/junior/senior engineering students. Professional and ethical considerations in practice of engineering. Impact of technology on society and on development of moral and ethical values. Contemporary environmental, biological, legal, and other is-

ssues created by new technologies. Emphasis on research and writing within engineering environments. Writing and revision of about 20 pages total, including two individual technical essays and one team-written research report. Readings address technical issues and writing form. Satisfies engineering writing requirement. Letter grading.

**184. Humanities-Informed Science, Technology, Engineering, and Mathematics (4)** Lecture, four hours. In popular imagination, science and technology are often viewed as fields of knowledge production critical to social progress and a cooperative future. This optimistic portrayal of technological advancement is also prominently in internal discourses amongst scientists, industry leaders, and science, technology, engineering, and mathematics (STEM) students. Yet a growing body of research, investigation, and first-person counts highlight varying ways modern science, technology, and engineering industries contribute to the degradation of changing environments, and exploit and harm global low-income and marginalized populations. Students learn critical frameworks—formulated through queer, radical feminist, and black analyses of science and technology studies—that destabilize sexual, gendered, racialized, anthropocentric, and able-bodied logics and hierarchies used to challenge and rethink knowledge production. Letter grading.

**185EW. Art of Engineering Endeavors (4)** Lecture, four hours; discussion, three hours; outside study, five hours. Enforced requisite: English Composition 3, 3D, 3DS, 3E, or 3SL. Not open for credit to students with credit for course 181EW, 182EW, 183EW, or 188EW. Designed for junior/senior engineering students. Nontechnical skills and experiences necessary for engineering career success. Importance of group dynamics in engineering practice. Teamwork and effective group skills in engineering environments. Organization and control of multidisciplinary complex engineering projects. Forms of leadership and qualities and characteristics of effective leaders. How engineering, computer sciences, and technology relate to major ethical and social issues. Societal demands on practice of engineering. Emphasis on research and writing in engineering environments. Satisfies engineering writing requirement. Letter grading.

**186. Ethics for Computer Scientists (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Equips students with a deep understanding of ethical challenges in contemporary technology, applying foundational ethical theories to ongoing technological advancements. Focus on responsible innovation, societal impact, and sustainable practices in computer science. Letter grading.

**186W. Ethics for Computer Scientists (5)** Lecture, four hours; discussion, four hours; outside study, eight hours. Requisite: English Composition 3. Students are equipped to understand ethical challenges in contemporary computer technology. Examination of the impact of technologies and their alignment or misalignment with societal values. Exploration of the ramifications of technology on core ethical principles, encompassing agency, responsibility, and privacy. Students draft 15-20 pages of revised prose and complete informal writing assignments. May be repeated once for credit. Satisfies Writing II requirement. Letter grading.

**188. Special Courses in Engineering (4)** Seminar, four hours; outside study, eight hours. Special topics in engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

**188EW. Experimental Courses in Engineering Ethics (4)** Lecture, four hours; discussion, three hours; outside study, five hours. Enforced requisite: English Composition 3, 3D, 3DS, 3E, or 3SL. Not open for credit to students with credit for course 181EW, 182EW, 183EW, or 185EW. Limited to junior/senior engineering students. Professional and ethical considerations in practice of engineering and computer science. Emphasis on research and writing within engineering and computer science. Writing and revision of about 20 pages total, including two individual technical essays. Readings address technical issues and writing form. Satisfies engineering writing requirement. Letter grading.

**191. Seminar Series in Engineering Research (1)** Seminar, one hour. Seminar series in cutting-edge engineering research at UCLA. Each seminar is given by UCLA graduate student researcher or post-doctoral scholar. Designed to be accessible to undergraduate students in any science, technology, engineering, and mathematics (STEM) major. Offers undergraduate students window into excitement of graduate student research experience. Also offers opportunity for graduate students to learn about what their peers are doing. P/NP grading.

**192. Fundamentals of Engineering Mentorship (2)** Seminar, two hours; outside study, four hours. Principles and practical techniques for instruction of hands-on engineering design projects. Curriculum planning, project preparation, classroom management, team collaboration, diversity awareness, fostering of group cohesion, and emergency procedures. Preparation of lessons

and projects for academic year courses and high school summer outreach program, with practice presentations. May be repeated for credit. P/NP grading.

**195. Internship Studies in Engineering. (1 to 4)** Tutorial, one hour. Limited to juniors/seniors. Internship studies course supervised by associate dean or designated faculty members. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated for credit. Individual contract with associate dean required. P/NP grading.

**199. Directed Research in Engineering. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**200. Program Management Principles for Engineers and Professionals (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Practical review of necessary processes and procedures to successfully manage technology programs. Review of fundamentals of program planning, organizational structure, implementation, and performance tracking methods to provide program manager with necessary information to support decision-making process that provides high-quality products on time and within budget. Letter grading.

**201. Systems Engineering (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Practical review of major elements of system engineering process. Coverage of key elements: system requirements and flow down, product development cycle, functional analysis, system synthesis and trade studies, budget allocations, risk management metrics, review and audit activities and documentation. Letter grading.

**202. Reliability, Maintainability, and Supportability (4)** Lecture, four hours; outside study, eight hours. Requisite: course 201. Designed for graduate students with one to two years work experience. Integrated logistic support (ILS) is major driver of system life-cycle cost and one key element of system engineering activities. Overview of engineering disciplines critical to this function—reliability, maintainability, and supportability—and their relationships, taught using probability theory. Topics also include fault detections and isolations and parts obsolescence. Discussion of 6-sigma process, one effective design and manufacturing methodology, to ensure system reliability, maintainability, and supportability. Letter grading.

**203. System Architecture (4)** Lecture, four hours; outside study, eight hours. Requisite: course 201. Designed for graduate students with BS degrees in engineering or science and one to two years work experience in selected domain. Art and science of architecting. Introduction to architecting methodology—paradigm and tools. Principles of architecting through analysis of architecture designs of major existing systems. Discussion of selected elements of architectural practices, such as representation models, design progression, and architecture frameworks. Examination of professionalization of system architecting. Letter grading.

**204. Trusted Systems Engineering (4)** Lecture, four hours; outside study, eight hours. Trust is placed in information systems to behave properly, but cyber threats and breaches have become routine, including penetration of financial, medical, government, and national security systems. To build systems that can protect confidentiality, integrity, and availability involves more than composing systems from network security, computer security, data security, cryptography, etc. One can use most secure components, and resulting system could still be vulnerable. Skills learned ensure that systems are architected, designed, implemented, tested, and operated for specific levels of trust. Aspects include assessing vulnerability and risk for systems, establishing protection principles, and using them as guide to formulate system architectures; translating architecture into system design and verifying correctness of design; and constructing and following trusted development and implementation process. Letter grading.

**205. Model-Based Systems Engineering (4)** Lecture, four hours; outside study, eight hours. Model-based systems engineering (MBSE) and systems modeling language (SysML) taught through lectures and readings, individual projects, and one group project. Lectures and readings to provide students with conceptual framework and vocabulary. Individual projects enable students to develop basic skills for creating SysML requirements and structural and behavioral diagrams. In group project students learn how to package, compartmentalize, and integrate smaller efforts while being constrained to meet schedules. Industry-recognized credentials may be obtained, as course

covers Object Management Group (OMG) Certified Systems Modeling Professional (OCSMP) tests, such as Model User and Model Builder Fundamentals and Model Builder Intermediate. Letter grading.

**206. Engineering for Systems Assurance (4)** Lecture, four hours; outside study, eight hours. Recommended requisites: course 204, Computer Science 236. Systems are constructed to perform complex functions and services. How to understand needs of users, analysis of requirements and derived requirements, creation of various system architecture products, and design and integration of various components into systems that perform these functions and services. System assurance addresses confidence that systems meet specified operational requirements based on evidence provided by applying assurance techniques. Introduction, investigation, and analysis of framework of assurance to accomplish total system assurance. Development of secure, reliable, and dependable systems that range from commercial realm such as air traffic control, Supervisory Control and Data Acquisition (SCADA), and autonomous vehicles to military realm such as command, control, communication, intelligence, and cyber. Letter grading.

**210. Operations and Supply Chain Management (4)** Lecture, four hours; outside study, eight hours. Introduction to strategic and operating issues and decisions involved in managing enterprises. Operational processes use organization's resources to transform inputs into goods and utilizes them to provide service, or does both. Conceptual framework and set of analytical tools provided to enable students to better understand why processes behave as they do. Given this understanding, students are able to involve themselves in organization's defining strategic decisions, those related to key processes affecting organizational unit's performance. Letter grading.

**211. Financial Management (4)** Lecture, four hours; outside study, eight hours. Introduction to concepts reflecting material generally covered in certain MBA core and elective courses. Integration of both theory—to introduce essential conceptual building blocks in accounting and finance—and empirical practice—to emphasize how these theories are actually implemented in real world. Cases, comprehensive problems, and recent events presented to provide students with as much hands-on experience in applying material presented as possible. Letter grading.

**212. Intellectual Property Law and Strategy (4)** Lecture, four hours; outside study, eight hours. Prior knowledge of legal doctrines or materials not required. Intellectual property law is not just topic for lawyers. Engineers who have design responsibilities must understand how legal system in some instances protects their designs and in other instances stands as obstacle to what would otherwise be most efficient design choice. Engineers with management responsibilities must understand intellectual property law implications for everything from pricing to strategic partnerships. Examination of intellectual property law, not only by learning fundamental rules associated with patent, copyright, trademark, and trade secret protection, but by studying business strategies that these rules support. Examples and case studies to be taken from across content, technology, and pharmaceutical industries. Letter grading.

**213. Data and Business Analytics (4)** Lecture, four hours; outside study, eight hours. Coverage of wide variety of spreadsheet models that can be used to solve business and engineering problems, with emphasis on mastery of Excel spreadsheet modeling as integral part of analytic decision making. Managerial models include data modeling, regression and forecasting, linear programming, network and distribution models, integer programming, nonlinear programming, and Monte Carlo simulation. Problems from operations, finance, and marketing taught by spreadsheet examples and describe general managerial situations from various industries and disciplines. Development of spreadsheet models to facilitate decision making. Letter grading.

**214. Management Communication (4)** Lecture, four hours. Exploration of knowledge, attributes, skills, and strategies necessary to succeed communicatively in workplace, with focus on business presentation skills, visual and verbal persuasion skills, and interpersonal communication skills. Letter grading.

**215. Entrepreneurship for Engineers (4)** Lecture, four hours; outside study, eight hours. Limited to graduate engineering students. Topics in starting and developing high-tech enterprises and intended for students who wish to complement their technical education with introduction to entrepreneurship. Letter grading.

**216. Product Management (4)** Lecture, four hours; outside study, eight hours. Study is built around the notion that product management is about managing the life cycle of the product. Focus on defining, developing, launching, scaling, and end of life for products. Consideration of why a product is needed in the market, why a particular solution is the right product, and why a particular solution creates value for the customers and the company. Focus

on products that have technological characteristics in the consumer products domain, the fundamentals of which are also applicable to products within enterprise, industrial, medical, and automotive sectors. Letter grading.

**299. Capstone Project (4)** Activity, 10 hours. Preparation: completion of minimum of four 200-level courses in online MS program. Project course that satisfies UCLA final comprehensive examination requirement of MS online degree in Engineering. Project is completed under individual guidance from UCLA Engineering faculty member and incorporates advanced knowledge learned in MS program of study. Letter grading.

**470A. Engineer in Technical Environment (3)** Lecture, three hours; outside study, six hours. Limited to Engineering Executive Program students. Theory and application of quantitative methods in analysis and synthesis of engineering systems for purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Case studies and individual projects. S/U or letter grading.

**470B. Engineer in Technical Environment (3)** Lecture, three hours; outside study, six hours. Limited to Engineering Executive Program students. Theory and application of quantitative methods in analysis and synthesis of engineering systems for purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Case studies and individual projects. S/U or letter grading.

**470C. Engineer in Technical Environment (3)** Lecture, three hours; outside study, six hours. Limited to Engineering Executive Program students. Theory and application of quantitative methods in analysis and synthesis of engineering systems for purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Case studies and individual projects. S/U or letter grading.

**470D. Engineer in Technical Environment (3)** Lecture, three hours; outside study, six hours. Limited to Engineering Executive Program students. Theory and application of quantitative methods in analysis and synthesis of engineering systems for purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Case studies and individual projects. S/U or letter grading.

**471A. Engineer in General Environment (3)** Lecture, three hours. Limited to Engineering Executive Program students. Influences of human relations, laws, social sciences, humanities, and fine arts on development and utilization of natural and human resources. Interaction of technology and society past, present, and future. Change agents and resistance to change. S/U or letter grading.

**471B. Engineer in General Environment (3)** Lecture, three hours. Limited to Engineering Executive Program students. Influences of human relations, laws, social sciences, humanities, and fine arts on development and utilization of natural and human resources. Interaction of technology and society past, present, and future. Change agents and resistance to change. In Progress grading (credit to be given only on completion of course 471C).

**471C. Engineer in General EnvironmentT. (1.5)** Lecture, 90 minutes. Limited to Engineering Executive Program students. Influences of human relations, laws, social sciences, humanities, and fine arts on development and utilization of natural and human resources. Interaction of technology and society past, present, and future. Change agents and resistance to change. S/U or letter grading.

**472A. Engineer in Business Environment (3)** Lecture, three hours. Limited to Engineering Executive Program students. Language of business for engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem solving. Analysis of actual business problems of firm, community, and nation, provided through cooperation and participation with California business corporations and government agencies. In Progress grading (credit to be given on completion of course 472B).

**472B. Engineer in Business Environment (3)** Lecture, three hours. Limited to Engineering Executive Program students. Language of business for engineering executive. Accounting, finance, business economics, business law,

and marketing. Laboratory in organization and management problem solving. Analysis of actual business problems of firm, community, and nation, provided through cooperation and participation with California business corporations and government agencies. S/U or letter grading.

**472C. Engineer in Business Environment (3)** Lecture, three hours. Limited to Engineering Executive Program students. Language of business for engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem solving. Analysis of actual business problems of firm, community, and nation, provided through cooperation and participation with California business corporations and government agencies. In Progress grading (credit to be given on completion of course 472D).

**472D. Engineer in Business EnvironmentT. (1.5)** Lecture, 90 minutes. Limited to Engineering Executive Program students. Language of business for engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem solving. Analysis of actual business problems of firm, community, and nation, provided through cooperation and participation with California business corporations and government agencies. S/U or letter grading.

**473A. Analysis and Synthesis of Large-Scale System (3)** Lecture, two and one half hours; outside study, six hours. Limited to students in Engineering Executive Program. Problem area of modern industry or government is selected as class project, and its solution is synthesized using quantitative tools and methods. Project also serves as laboratory in organization for goal-oriented technical group. In Progress grading (credit to be given only on completion of course 473B).

**473B. Analysis and Synthesis of Large-Scale System (3)** Lecture, two and one half hours; outside study, six hours. Limited to students in Engineering Executive Program. Problem area of modern industry or government is selected as class project, and its solution is synthesized using quantitative tools and methods. Project also serves as laboratory in organization for goal-oriented technical group. S/U grading.

**495A. Teaching Assistant Training Seminar (4)** Seminar, four hours; outside study, eight hours. Preparation: appointment as teaching assistant. Limited to graduate engineering students. Seminar on communication of engineering principles, concepts, and methods, preparation, organization of material, presentation, use of visual aids, grading, advising, and rapport with students. S/U grading.

**495I. Teaching Preparation Seminar: Writing for Engineers (4)** (Same as English Composition M495I.) Seminar, two and one half hours; outside study, nine and one half hours. Limited to graduate students. Required of all teaching assistants for Engineering writing courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

**495J. Supervised Teaching of Writing for Engineers (2)** (Same as English Composition M495J.) Seminar, one hour; outside study, five hours. Enforced requisite: course M495I. Required of all teaching assistants in their initial term of teaching Engineering writing courses. Mentoring in group and individual meetings. Continued focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

# English

## English Courses

### Lower Division

**4HW. Critical Reading and Writing (Honors) (5)** Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of four papers (three to five pages each) and two in-class essays. Satisfies Writing II requirement. Letter grading.

**4W. Critical Reading and Writing (5)** Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of 15 to 20 pages of revised writing. Satisfies Writing II requirement. Letter grading.

**4WX. Critical Reading and Writing (Community-Engaged Learning) (5)** (Formerly numbered 4WS.) Lecture, four hours; fieldwork, two hours. Enforced requisite: English Composition 3. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of 15 to 20 pages of revised writing. Service learning component includes meaningful work with off-campus agency selected by instructor. Satisfies Writing II requirement. Letter grading.

**10A. Literatures in English to 1700 (5)** Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Survey of major writers and genres, with emphasis on tools for literary analysis such as close reading, argumentation, historical and social context, and critical writing. Minimum of three papers (three to five pages each) or equivalent required. P/NP or letter grading.

**10B. Literatures in English, 1700 to 1850 (5)** Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW, 10A. Survey of major writers and genres, with emphasis on tools for literary analysis such as close reading, argumentation, historical and social context, and critical writing. Minimum of three papers (three to five pages each) or equivalent required. P/NP or letter grading.

**10C. Literatures in English, 1850 to Present (5)** Lecture, three hours; discussion, one hour. Enforced requisites: course 4W, English Composition 3. Recommended requisites: courses 10A, 10B. Survey of major writers and genres, with emphasis on tools for literary analysis such as close reading, argumentation, historical and social context, and critical writing. Minimum of three papers (three to five pages each) or equivalent required. P/NP or letter grading.

**11. Introduction to American Cultures (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: English Composition 3, English 4W or 4HW or 4WS. Exploration of question of what is meant by America, and hence what is meant by American culture and American studies. Addresses concepts of origins (real or imagined beginnings of cultural formations), identities (narratives of people and places), and media (creative process as manifest in aesthetic forms, artistic movements, and information systems). P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Creative Writing (4)** Lecture, four hours; discussion, one hour (when scheduled). Preparation: submission of creative or expository writing samples to screening committee. Enforced requisites: satisfaction of Entry-Level Writing requirement, English Composition 3. Not open for credit to students with credit for course 20W. Designed to introduce fundamentals of creative writing. Emphasis either on poetry, fiction, or drama, depending on wishes of instructor(s) during any given term. Readings from assigned texts and weekly writing assignments required. P/NP or letter grading.

**20W. Introduction to Creative Writing (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: satisfaction of Entry-Level Writing requirement, English Composition 3. Not open for credit to students with credit for course 20. Designed to introduce fundamentals of creative writing and writing workshop experience. Emphasis on poetry, fiction, drama, or creative nonfiction depending on wishes of instructor(s) during any given

term. Readings from assigned texts, weekly writing assignments (multiple drafts and revisions), and final portfolio required. Satisfies Writing II requirement. Letter grading.

**30. Environmental Literature and Culture (5)** (Same as Environment M30.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. P/NP or letter grading.

**30SL. Environmental Literature and Culture (Service Learning) (5)** (Same as Environment M30SL.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. Service learning component includes meaningful work with off-campus agency/agencies selected by instructor. P/NP or letter grading.

**31. Apocalypse: Imagining End of World (5)** Lecture, four hours; discussion, one hour. Imagining that world will come to end is common reaction to crises such as war, genocide, famine, epidemic, and natural disaster. It is also major component of some religious traditions and political movements that aim to change society from ground up. Exploration of narrative templates and visual images that have typically accompanied stories about end of world, historical moment and movement they emerge from, their creators, audiences, and impacts. Exploration of these questions through wide range of textual and visual works from scholarship and journalism to novels, graphic novels, films, and videos. Consideration of how typical story templates, characters, and motifs of apocalypse shape current perceptions of risks, crises, and disasters that range from violent social conflict and revolutionary movements to industrial accidents, epidemics, and climate change. P/NP or letter grading.

**32. Future Environments: Cities, Ecologies, Planets (5)** Lecture, three hours; discussion, one hour. In the 20th and 21st centuries, the study of natural and built environments often involved visions of the future along with proposals for social and political change: narratives and images of what better futures might look like, and how worse futures might be avoided. Implicitly or explicitly, these narratives of future environments are enmeshed with underlying assumptions about what the best social order would be, how a more just society might function, and how human communities should relate to nonhuman species and systems. Focus on connection between stories about urban, ecological, and planetary futures; technologies involved in their creation, use, and maintenance; and underlying assumptions that shape them. Students apply narrative analysis and reasoning about social justice to stories about future environments and techno-social innovation. P/NP or letter grading.

**50. Introduction to Visual Culture (5)** (Same as Film and Television M50.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of how visual media, including advertising, still and moving images, and narrative films, influence contemporary aesthetics, politics, and knowledge. P/NP or letter grading.

**51A. Poems and Poets (5)** Lecture, three hours; discussion, one hour. Offers sample of enormous body of poetry written in English since Middle Ages. Reading of series of celebrated poets and their poems as way of exploring what poetry is and what it is for. Specifically, how works of art respond to conditions of social life as well as intimate personal experience. Consideration of poetry's political power. In-depth discussion about gender, race, class, sexuality, colonial violence, and, broadly, relationship between art and justice. Students are familiarized with key poetic forms, conventions, and techniques; learn how to read poem critically; and get better at putting thoughts in writing. Letter grading.

**60. L.A. Women (5)** Lecture, four hours. Focus on women writers and filmmakers who live in and write about Los Angeles. Ranging personal essay, memoir, science fiction, romantic comedy, sitcom, and documentary, writers and filmmakers encountered linger and loiter in L.A.'s neighborhoods and their communities that expand, complicate, and enrich what we think we know about City of Angels. Students become particularly attuned to how race, ethnicity, gender, sexuality, and class inform one's orientation to and mobility within L.A. Study of history of L.A., from its more visible areas like Hollywood or Beverly Hills to its edges and outlying spaces like San Fernando Valley, Inland Empire, and East L.A. Students think critically about how women's accounts of living in, or visiting, L.A. have contributed to and intervened within stories city tells about itself. P/NP or letter grading.



**70. Medievalisms: Medieval Literature and Contemporary Culture (5)** Lecture, four hours; discussion, one hour. Requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any course in the 140 series. Introduction to medieval texts juxtaposed with modern texts and media to analyze how and why the medieval (in form of crusade, quest, romance, world-construction, etc.) is continually reproduced and transformed in large scale popular productions, novels, film, and television. Textual focus on medieval works in comparison to analysis of 20th- and 21st-century works may include *Beowulf*, *Sir Gawain and the Green Knight*, *Le Morte Darthur*, *Lord of the Rings*, *Game of Thrones*, and *Harry Potter*. P/NP or letter grading.

**80. Major American Authors (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any courses in 170 series. Introduction to chief American authors, with emphasis on poetry, nonnarrative prose, and short fiction of such writers as Poe, Dickinson, Emerson, Whitman, Twain, Frost, and Hemingway. P/NP or letter grading.

**85. American Novel (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any courses in 170 series. Development, with emphasis on form, of American novel from its beginning to present day. Includes works of such novelists as Hawthorne, Fitzgerald, Faulkner, Ellison, and Morrison. P/NP or letter grading.

**87. Topics in American Cultures (5)** Seminar, three hours. Requisites: English Composition 3, English 4W or 4HW or 4WS, 11. Content varies. Introductory study of diverse peoples, histories, and ideas of America. P/NP or letter grading.

**88A. Lower-Division Seminar: Special Topics in English—Medieval Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88B. Lower-Division Seminar: Special Topics in English—Renaissance Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88C. Lower-Division Seminar: Special Topics in English—17th-Century Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88D. Lower-Division Seminar: Special Topics in English—18th-Century Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88E. Lower-Division Seminar: Special Topics in English—Romantic Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88F. Lower-Division Seminar: Special Topics in English—Victorian Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88G. Lower-Division Seminar: Special Topics in English—20th-Century British Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88H. Lower-Division Seminar: Special Topics in English—Colonial American Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88I. Lower-Division Seminar: Special Topics in English—19th-Century American Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88J. Lower-Division Seminar: Special Topics in English—20th-Century American Literature (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88K. Lower-Division Seminar: Special Topics in English—History of English Language (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88L. Lower-Division Seminar: Special Topics in English—Folklore and Mythology (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88M. Lower-Division Seminar: Special Topics in English—Literature and Society (5)** Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading.

**88SL. Lower-Division Seminar: Special Topics in English—Service Learning (5)** Seminar, three hours; fieldwork, three hours. Limited to 15 students. Textual analysis, analytical discussion, and written assignments about works of literature that raise issues relevant to contemporary society. Service learning component includes minimum of 20 hours service with agency involved in issues of public advocacy and social justice. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Shakespeare (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for course 150A or 150B. Survey of Shakespeare's plays, including comedies, tragedies, and histories, selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement. P/NP or letter grading.

**91A. Introduction to Poetry (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Recommended for instructional credential candidates. Study of critical issues (metrics, diction, figurative language, symbolism, irony and ambiguity, form and structure) and aesthetic issues, including evaluative criteria, followed by close critical analysis of selection of representative poems. P/NP or letter grading.

**91B. Introduction to Drama (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Examination of representative plays; readings may range from Greek to modern drama. Emphasis on critical approaches to dramatic text; study of issues such as plot construction, characterization, special uses of language in drama, methods of evaluation. P/NP or letter grading.

**91C. Introduction to Fiction (5)** Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to prose narrative, its techniques and forms. Analysis of short and long narratives and of critical issues such as plot, characterization, setting, narrative voice, realistic and nonrealistic forms. P/NP or letter grading.

**91D. Introduction to Graphic Fiction (5)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: satisfaction of Entry-Level Writing requirement. Introduction to popularity and important cultural work of comic books and graphic novels. Emphasis on how text and image combine to create meaning, including problem of appropriateness of comics for serious cultural topics. P/NP or letter grading.

**97H. Honors Research Seminar for Freshmen and Sophomores (4)** Seminar, three hours. Enforced requisites: English Composition 3, English 4W (or 4HW). Recommended for lower-division students who desire familiarity with research methods in literary studies. Areas may include use of archives; locating, reading, and incorporating secondary criticism; critical and textual studies; history of books. Specific literatures vary with instructor. May not be repeated for credit. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**100. Ways of Reading Race (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: English Composition 3. Introduction to interdisciplinary study of race and ethnicity, with primary focus on literature. Through examination of institutions that form understanding of race—citizenship, nationalism, class, gender, and labor—interrogation of how we come to think of ourselves and others as having race, and effects of such racialized thinking. Course is not about any particular racial or ethnic group, but highlights creation of ethnic categories and their effects on cultural production. P/NP or letter grading.

**101A. Premodern Queer Literatures and Cultures (5)** (Same as Gender Studies M105A and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Survey of discrete period of queer literature from beginning to circa 1850. Works by such writers as Sappho, Plato, Marlowe, Shakespeare, and Thomas Gray may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**101B. Queer Literatures and Cultures, 1850 to 1970 (5)** (Same as Gender Studies M105B and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of discrete period of queer literature and culture from circa 1850 to 1970. Works by such authors as Walt Whitman, Radclyffe Hall, Gertrude Stein, Virginia Woolf, Langston Hughes, Tennessee Williams, Henry Blake Fuller, and James Baldwin may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**101C. Queer Literatures and Cultures after 1970 (5)** (Same as Gender Studies M105C and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Examination of cultural production, specifically literature, produced by queers after Stonewall rebellion in New York in 1969, widely regarded as origins or beginning of modern lesbian and gay rights movement in U.S. Writings and films by such authors as Andrew Holleran, Leslie Feinberg, Achy Obejas, Essex Hemphill, Audre Lorde, Cheryl Dunye, and Alison Bechdel may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**101D. Studies in Queer Literatures and Cultures (5)** (Same as Gender Studies M105D and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Variable specialized studies course in queer literatures and cultures. Topics focus on particular problem or issue in terms of its relationship to queer cultures and writings. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**102A. Historical Survey of Asian American Literature (5)** (Same as Asian American Studies M112A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Survey of Asian American literature either produced from or thematically reflecting pre-1980 period. Issues include immigration, diaspora, generational conflict, appropriation of cultural traditions, ethnic/gender formation, interethnic dynamics, and social movement. Works by such authors as Edith Eaton, Younghill Kang, Carlos Bulosan, Hisaye Yamamoto, John Okada, Frank Chin, and Maxine Hong Kingston. P/NP or letter grading.

**102B. Contemporary Asian American Literary Issues and Criticism (5)** (Same as Asian American Studies M112B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Survey of post-1980 Asian American literature that explores key literary and critical issues, such as race and geography, aesthetics and activism, cultural work and immigrant labor, kinship and sexuality, model minority and Orientalism, and meat versus rice, in study of novels, poetry, performance, memoirs, and essays. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**103. Studies in Disability Literatures (5)** (Same as Disability Studies M103.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Survey of modes of disability in literature, with specific emphasis on thematic concerns. Topics may include introduction to disability studies; race, gender, and disability; disability narratives; etc. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**104A. Early African American Literature (5)** (Same as African American Studies M104A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Introductory survey of African American literature from 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, Frances Harper, Frederick Douglass, Harriet Jacobs, Charles Chesnut, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

**104B. African American Literature from Harlem Renaissance to 1960s (5)** (Same as African American Studies M104B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Introductory survey of 20th-century African American literature from New Negro Movement of post-World War I period to 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, Gwendolyn Brooks, and Ralph Ellison. P/NP or letter grading.

**104C. African American Literature of 1960s and 1970s (5)** (Same as African American Studies M104C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Introductory survey of African American literary expression from late 1950s through 1970s. Topics include rise of Black Arts Movement of 1960s and emergence of black women's writing in early 1970s, with focus on authors such as Lorraine Hans-

berry, Amiri Baraka, Nikki Giovanni, Alice Walker, Toni Morrison, Ishmael Reed, Audre Lorde, Paule Marshall, and Ernest Gaines. P/NP or letter grading.

**104D. Contemporary African American Literature (5)** (Same as African American Studies M104D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Introductory survey of African American literature from 1980s to present covering range of genres, with emphasis on diversity of perspectives and styles that have emerged over past 30 years or so. Authors may include Toni Morrison, August Wilson, Octavia Butler, Anna Deavere Smith, June Jordan, Charles Johnson, and Rita Dove. P/NP or letter grading.

**104E. Topics in African American Literature and Culture (5)** (Same as African American Studies M104E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Variable topics lecture course that provides opportunity to cover African American literature from wide range of theoretical, historical, format, and thematic perspectives. Topics may include African American autobiography, 20th-century African American literature and film, black diaspora literature, postmodern African American fiction, Afro-Futurism, and African American satire. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105A. Early Chicana/Chicano Literature, 1400 to 1920 (5)** (Same as Chicana/o and Central American Studies M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of Chicana/Chicano literature from poetry of Triple Alliance and Aztec Empire through end of Mexican Revolution (1920), including oral and written forms (poetry, corridos, testimonios, folklore, novels, short stories, and drama) by writers such as Nezahualcoyotl (Hungry Coyote), Cabaza de Vaca, Lorenzo de Zavala, María Amparo Ruiz de Burton, Eusebio Chacón, Daniel Venegas, and Lorena Villegas de Magón. P/NP or letter grading.

**105B. Chicana/Chicano Literature from Mexican Revolution to el Movimiento, 1920 to 1970s (5)** (Same as Chicana/o and Central American Studies M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Chicana/Chicano literature from 1920s through Great Depression and World War II, ending with Chicana/Chicano civil rights movement. Oral and written narratives by writers including Conrado Espinoza, Jovita González, Cleofas Jaramillo, Angelico Chávez, Mario Suárez, Oscar Acosta, and Evangelina Vigil. P/NP or letter grading.

**105C. Chicana/Chicano Literature since el Movimiento, 1970s to Present (5)** (Same as Chicana/o and Central American Studies M105C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of Chicana/Chicano literature since 1970s, with particular emphasis on how queer and feminist activism as well as Central and South American migration have shaped 21st-century chicanidad. Oral, written, and graphic fiction, poetry, and drama by writers including John Rechy, Gloria Anzaldúa, Los Bros Hernández, Ana Castillo, and Dagoberto Gilb guide exploration of queer and feminist studies, Reagan generation, immigration debates, and emerging Latina/Latino majority. P/NP or letter grading.

**105D. Introduction to Latina/Latino Literature (5)** (Same as Chicana/o and Central American Studies M105D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of U.S. Latina/Latino literature and introduction to its major critical trends, with emphasis on groups of Caribbean, Mexican, South American, and Central American origin. Representative works read in relation to such topics as relationship between Latina/Latino populations and U.S. cultural sphere, struggle for self-determination, experiences of exile and migration, border zones, enclaves and language, and mestizaje and its impact on cultural production. P/NP or letter grading.

**105E. Studies in Chicana/Chicano and/or Latina/Latino Literature (5)** (Same as Chicana/o and Central American Studies M105E.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Variable topics course to give students broad introduction to issues and themes in Chicana/Chicano and/or Latina/Latino literature. Topics include border, immigration, revolution, language, gender, sexuality, and diaspora, among others. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105XP. Seminar: Chicana/Chicano and/or Latina/Latino Literature—Community-Engaged Learning (5)** (Formerly numbered M105SL.) (Same as Chicana/o and Central American Studies M105XP.) Seminar, three or four hours; field placement, three or four hours. Enforced prerequisite: English Composition 3. Specialized studies in Chicana/Chicano and/or Latina/Latino literature. In-depth study of various topics related to Chicano/Latino communities in Southern California, including Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; and labor and literature. Service learning component in-

cludes minimum of 20 hours of meaningful work with agency involved with Chicana/Chicano and/or Latina/Latino community and selected by instructor. P/NP or letter grading.

**106. Studies in Native American and Indigenous Literatures (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of Native American and/or transnational indigenous literary and cultural expression. Topics may include oral traditions and histories, decolonization and sovereignty, identity and place in comparative perspectives, and multiple genres and forms such as novel, poetry, drama, visual arts, dance, song, and film. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**107A. Studies in Women's Writing (5)** (Same as Gender Studies M107A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Focus on women writers that may include historical, regional, national, or thematic emphasis, with possible topics such as authorship, self-writing, sexuality, gender, and genre. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**107B. Studies in Gender and Sexuality (5)** (Same as Gender Studies M107B and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M107B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Examination of literary and cultural production through lens of gender and sexuality. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic and include other intersectional vectors of identity and representation such as race and ethnicity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**108. Interracial Encounters (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: English Composition 3 or 3H. Study of literary, cultural, and/or cinematic texts produced by people from different ethnic and religious backgrounds and providing comparative cultural perspectives on living in multiethnic societies. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**109. Topics in Race, Ethnicity, Gender, and Sexuality Studies (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**110A. Writing in English Major: Analytical (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: course 4W (or 4HW or 4WS), English Composition 3. Not open for credit to students with credit for course 110T. Improvement and refinement of writing about literature. Focus on writing as process, rewriting, and argument; minimum 15 to 20 pages of writing required. May not be repeated for credit. P/NP or letter grading.

**110C. Public Readers, Public Writers: Writing about Books for 21st-Century Audience (5)** Lecture, four hours. Requisites: course 4W (or 4HW or 4WS), English Composition 3 (or 3D or 3DS or 3SL). In-depth study and practice of literary and cultural criticism for general audience. Focus on writing as process, rewriting, and argument; minimum 15 to 20 pages of writing. May not be repeated for credit. P/NP or letter grading.

**110E. Writing in English Major: Advanced Essay (5)** Seminar, three or four hours. Requisites: course 4W (or 4HW or 4WS), English Composition 3. Enrollment by consent of instructor. Workshop in writing of advanced literary analyses; study of methods and techniques of developing complex critical arguments. Minimum 15 to 20 pages of revised writing required. May not be repeated for credit. P/NP or letter grading.

**110P. Writing in English Major: Pre-Professional Portfolio (5)** Seminar, four hours. Requisites: course 4W, English Composition 3 or equivalent. Limited to English department majors and minors. Writing for professions. Students review written materials completed in previous English or English Composition courses and develop new documents, projects, and writing samples relevant to success in variety of professions including postgraduate study. Culminates in writing portfolio of each student's work. May not be repeated for credit. P/NP or letter grading.

**110T. Writing in English Major: Transfer Students (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 4W (or 4HW), 10A, 10B, 10C, English Composition 3. Open only to English major transfer students. Not open for credit to students with credit for course 110A. Improvement and refinement of writing about literature and culture. Focus on writing as process, rewriting, and nuanced argument; minimum 15 to 20 pages of writing required. May not be repeated for credit. P/NP or letter grading.

**110V. Variable Topics in Professional Writing (5)** Lecture, four hours. Requisites: course 4W (or 4HW or 4WS), English Composition 3 (or 3D or 3DS or 3SL). Focus on writing as adaptable, multifaceted professional skill as well as process, rewriting, and argument; minimum 15 to 20 pages of writing. May not be repeated for credit. P/NP or letter grading.

**111A. Hebrew Bible in Translation (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Literary study of Hebrew Bible (Old Testament), with emphasis on literary devices and narrative structures in relation to Judaic historical, political, psychological, philosophical, and theological themes. P/NP or letter grading.

**111B. Christian Biblical Texts in Translation (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Literary study of canonical New Testament and other Christian texts (deuterocanonical, apocryphal, gnostic, etc.), with emphasis on literary devices and narrative structures in relation to Judeo-Christian historical, political, psychological, philosophical, and theological themes. P/NP or letter grading.

**111C. Topics in Biblical Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: course 111A or 111B. Study of topics in Hebrew Bible and/or New Testament, with attention to particular literary themes, motifs, genres, and modes of interpretation. Discussion of influence of Bible on discrete periods or individual authors in literatures in English. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**112A. Oral Tradition (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of myth, dramatic origins, oral epic, folktale, and ballad. P/NP or letter grading.

**112B. Celtic Mythology (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of early textual materials pertaining to Celtic peoples and their stories, with emphasis on techniques of mythological analysis. P/NP or letter grading.

**112C. Survey of Medieval Celtic Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to 14th century. P/NP or letter grading.

**112D. Celtic Folklore (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to colonial and postcolonial issues and folkloristic methods. P/NP or letter grading.

**112E. Food and Fantasy in Irish Tradition and Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Food, cooking, feeding, eating, and drinking as powerful cultural symbols in Irish oral and literary tradition from medieval to modern times. P/NP or letter grading.

**113A. History of English Language (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study directed toward English majors of main features in grammatical, lexical, and phonetic condition of English language from Indo-European time to present. P/NP or letter grading.

**113B. Introduction to Structure of Present-Day English (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introduction to techniques of linguistic description as applied to pronunciation, grammar, and vocabulary of modern English. P/NP or letter grading.

**114. Lyric Histories (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Exploration of lyric poetry in English across centuries. Topics may include historical evolution of aesthetic forms, changing concepts of dramatic personae, matter of literary influence, and complex relationship of individual lyric speakers with their social and historical contexts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**115A. American Popular Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Examination of such popular styles and genres as sentimental literature, sensation fiction, dime novels, crime stories, pornography, science fiction, supernatural tales, Hollywood novels, and other kinds of mass literary expression. P/NP or letter grading.

**115B. British Popular Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Readings in literature of British masses, from 16th-century broadsides to contemporary novels. Examination of social and cultural aspects of literature. P/NP or letter grading.

**115C. Literature for Children and Adolescents (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of historical backgrounds and development of types of children's literature, folklore and oral tradition, criticism, illustration, and bibliography and/or analysis and evaluation of literature intended mainly for students in junior and senior high schools. P/NP or letter grading.

**115D. Detective Fiction (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of British and American detective fiction and literature of detection. P/NP or letter grading.

**115E. Science Fiction (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of science fiction and speculative literatures. P/NP or letter grading.

**115XP. Community-Based Studies of Popular Literature (5)** (Formerly numbered M115SL.) (Same as Community Engagement and Social Change M110XP.) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, two hours. Enforced requisite: English Composition 3. Service learning course that examines history and development of one or more genres of popular literature, with attention to contemporary communities of readers and writers and formation of civil society. Topics vary and may include children's literature and childhood literacy, mass market fiction and book club culture, or science fiction and science policy. Service-learning component includes meaningful work with local nonprofit organizations selected in advance by instructor. May be repeated for credit with topic change. P/NP or letter grading.

**116A. Experimental Fiction (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of novels and short stories that employ playful or experimental practices in language, narrative, hybridity (genre, medium), typography, and other material aspects of text such as binding and book design. Focus generally on texts from 20th century and later, but can include readings dating to beginning of novel. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**116B. Introduction to Electronic Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Overview of literatures involving digital technology, such as hypertext fiction, interactive fiction, animated and interactive poetry, multimedia works, video game narrative, and works employing network protocols and print-based works influenced by digital culture. Basic introduction to new media theory. P/NP or letter grading.

**117. Literature of California and American West (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of literature in English dealing with exploration, settlement, and emergent cultural awareness of Western U.S. P/NP or letter grading.

**118A. Interdisciplinary Studies in Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of literatures in English in relation to other disciplines such as sciences, history, politics, philosophy, music, photography, visual studies, psychology. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**118B. Literature and Other Arts (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Investigation of relationship of literature to one or more other arts, including music (opera, musical theater, popular music, jazz), painting, photography, other visual arts, sculpture and other plastic arts, performance art, dance, architecture. Topics vary and may include not only English literature but foreign literature in translation. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**118C. Studies in Visual Culture (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of visual images (photography, film, video) and their relation to literary and/or popular culture. Topics include adaptation, visual analysis, word and image, image and culture, film and visual culture. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**118E. Literature and Environment (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Study of literature from environmental perspectives, including ecocritical and interdisciplinary consideration of issues such as environmental justice, animal studies, food studies, gender studies, urban and postcolonial ecologies, climate change, cultural biophilia and biophobia, and relationship of literature to sciences. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**118F. Food Cultures and Food Politics (5)** (Same as Food Studies M132 and Society and Genetics M132.) Lecture, four hours; discussion, one hour (when scheduled). Requisite: English Composition 3. Introduction to interdisciplinary

field of food studies, with focus on how literature, art, science writing, and visual culture address political dimensions of food and agriculture in specific contexts. P/NP or letter grading.

**119. Literary Cities (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Exploration of place of literary imagination in making of cities, with focus on questions of cultural exchange, development, migration, urban rebellion, and style. Topics may include meaning of urban space and time, city as urban village or cosmopolitan hub, segregated dystopia or postmodern future, and impact of exile, tourism, and migration in making of cities. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**119XP. Literary Cities—Service Learning (5)** (Formerly numbered 119SL.) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, two hours. Enforced requisite: English Composition 3. Exploration of place of literary imagination in making of cities, with focus on questions of cultural exchange, development, migration, urban rebellion, and style. Topics may include meaning of urban space and time, city as urban village or cosmopolitan hub, segregated dystopia or postmodern future, and impact of exile, tourism, and migration in making of cities. Service learning component includes meaningful work with local nonprofit organizations selected in advance by instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**120. History of Aesthetics and Critical Theory (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of texts and ideas in history of aesthetics, critical theory, and interpretation from Greeks through 18th century. Readings may include Gorgias, Plato, Aristotle, Longinus, Biblical hermeneutics, Hume, Descartes, Kant, Schiller, and Hegel. May not be repeated for credit. P/NP or letter grading.

**121. Modern and Contemporary Aesthetics and Critical Theory (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Investigation of some dominant trends in 19th- and 20th-century aesthetics, critical theory, and interpretation. Topics may include Marxism, psychoanalysis, structuralism, poststructuralism, feminism, and postcolonialism. May not be repeated for credit. P/NP or letter grading.

**122. Keywords in Theory (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Recommended: courses 120, 121. Taking its model from Raymond Williams' classic vocabulary of culture and society, investigation of fundamental theoretical concepts, or keywords, that have emerged from variety of intellectual disciplines to shape literary and cultural studies. Consideration of lexical development of such keywords; how they alter and enrich assumptions about textuality, readers, and authorship; and how they engender interpretive paradigms and methodologies for study of literature and culture. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**123. Theories of History and Historicism (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Recommended: courses 120, 121. Exploration of theories of history and historicism that offer productive approaches to literary texts. Investigation of how theorists negotiate between abstract concepts of history and situated historical narratives, how histories are constructed, troped, and given authority, how histories constitute past and present in relationship to each other to stabilize tradition or induce change, and complex ways that literary texts operate within and on their historical contexts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**124. Theories of Religion (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Recommended: courses 120, 121. Examination of relationship between literary and religious practices and traditions. Topics may include legacies of monotheisms, theories of sacrifice, sacrament, gift, and mystical traditions, as well as history of allegory and theological approaches to reading. Selected topics may address literary applications of religious categories as treated in cultural anthropology, philosophy, and critical theory. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**125. Violence in Cultural Theory and Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Recommended: courses 120, 121. Examination of literary, philosophical, religious, and/or psychological texts that theorize causes, effects, political justifications, cultural sublimations, and literary uses and critiques of violence. P/NP or letter grading.

**126. Feminist and Queer Theory (5)** (Same as Gender Studies M126 and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M126.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Recommended: one course from 120, 121, Gender Studies 102, 103, or 104. Investigation of key concepts and debates in study of gender, sexuality, and kinship, with focus on their interrelated significance for

making of culture. Readings to be interdisciplinary, with possible emphasis on impact of changing ideas of gender and sexuality on specific historical cultures. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**127. Performance, Media, and Cultural Theory (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Recommended: courses 120, 121. Examination of concepts and modes of performance, culture, and/or media, broadly construed. Evaluation of different modes of inquiry around one or more of these concepts, as well as their intersection, in various intellectual traditions, including fields of cultural studies, performance studies, literary analysis, and film theory. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**128. Postcolonial and Transnational Theory (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 130, 131. Exploration of methodological, aesthetic, and theoretical implications of postcolonial and transnational approaches to study of literature and culture. Topics may include theories of subaltern, orientalist, feminist, and/or indigenous representation and histories and may address representational issues of national sovereignty in wake of globalization and neocolonialism. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**129. Topics in Genre Studies, Interdisciplinary Studies, and Critical Theory (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Recommended: courses 120, 121. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**130. Introduction to Postcolonial Literatures (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Introduction to major themes and issues in postcolonial literature, with focus on contemporary literature and writings produced after decolonization, often engaging history of British or other empires with emphasis on Anglophone writers from Africa, Caribbean, South Asia, and indigenous Pacific. May not be repeated for credit. P/NP or letter grading.

**131. Studies in Postcolonial Literatures (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Strongly recommended: course 130. Survey of how colonialism and decolonization have shaped literary and cultural expression, with specific emphasis on regional or thematic concerns. Topics may include literatures of Africa and African diaspora, environment and empire, Caribbean contact zones, or literatures of indigenous Pacific. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**132. Culture and Imperialism (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Exploration of relationship between culture and imperialism through lens of literary texts to raise questions about what study of empire tells about relationship between power and knowledge. Discussion of shifting patterns and paradigms of imperial rule, including way both metropolitan and peripheral or colonial spaces were transformed. Emphasis may be on particular historical period or may adopt thematic approach, such as Orientalism. Topics may include construction of gender, race, otherness, nature, religion, and nation. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**133. Transatlantic Literatures and Cultures (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of literatures of Atlantic to examine cultural, political, and ideological issues that followed from transatlantic movement of people, ideas, commodities, and cultural artifacts. In addition to literatures of Britain and U.S., coverage may include texts from Africa, Caribbean, Mexico, South America, Spain, and other parts of Europe. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**134. Nationalism and Transnationalism (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Examination of how critical frameworks of nation and migration, transnationalism and globalization, and tradition and modernity frame analysis of literary texts, particularly relationship between literature and national identity. Other topics include nation building in relationship to regional identities as well as discourses of national expansion, diaspora, resettlement, and exile and foundational narratives of nation in relationship to representations of mobility. Genres may include epic, romance, travel narrative, novel, and autobiography. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**135. Literature of Americas (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A and 10B, or 11 and 87. Survey of literatures of Americas, with emphasis on complex ways in which letters of North America, Central America, South America, and Caribbean forge distinctly American perspective on global affairs. Spans literature from age of encounter to 19th-century U.S. American revolution and Latin American independence movements and beyond, considering such topics as empire, colonialism, slavery, transnational dynamics, and cross-cultural transformations among indigenous, European, and African civilizations. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**136A. Creative Writing: Intermediate Poetry (5)** Seminar, three or four hours. Enforced requisites: courses 4HW or 4W or 20 or 20W, English Composition 3. Not open for credit to students with credit for course 136B. Reading in contemporary poetry and exercises in writing of poetry. Discussion based on assigned reading and on student work. Enrollment in more than one section per term not permitted. May be repeated for maximum of 10 units. P/NP or letter grading.

**136B. Creative Writing: Advanced Poetry (5)** (Formerly numbered 136.) Seminar, three or four hours. Enforced requisites: courses 4HW or 4W or 20 or 20W, English Composition 3. Further reading in contemporary poetry and exercises in writing of poetry. Some classroom discussion based on assigned reading, but most on student work. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. P/NP or letter grading.

**137A. Creative Writing: Intermediate Short Story (5)** Seminar, three or four hours. Enforced Requisites: courses 4HW or 4W or 20 or 20W, English Composition 3. Not open for credit to students with credit for course 137B. Reading in contemporary short stories and exercises in short fiction writing. Classroom discussion based on assigned reading and student work. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. P/NP or letter grading.

**137B. Creative Writing: Advanced Short Story (5)** (Formerly numbered 137.) Seminar, three or four hours. Enforced Requisites: courses 4HW or 4W or 20 or 20W, English Composition 3. Further reading in contemporary short stories and exercises in fiction writing, with emphasis on longer stories. Some classroom discussion based on assigned reading, but most on student work. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. P/NP or letter grading.

**138. Topics in Creative Writing (5)** (Same as English Composition M138.) Seminar, three hours. Requisite: English Composition 3 or 3D or 3DS or 3SL. Introductory workshop in genre(s) of instructor choice, that may include mixed genres, playwriting, screenwriting, literary nonfiction, or others. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. May not be used to satisfy workshop requirements for English creative writing concentration. P/NP or letter grading.

**139. Individual Authors (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Specialized study of work of one single Anglophone poet, dramatist, prose writer, or novelist. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**140A. Chaucer: Canterbury Tales (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Introductory study of Chaucer's language, versification, and historical and literary background, including analysis and discussion of his long major poem, *Canterbury Tales*. P/NP or letter grading.

**140B. Chaucer: Troilus and Criseyde and Selected Minor Works (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of *Troilus and Criseyde* and selected minor works of Chaucer, such as *Book of the Duchess*, *House of Fame*, *Parliament of Fowls*, etc. P/NP or letter grading.

**141A. Early Medieval Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B. Major poetry and prose of early medieval Britain, including epic, romance, history, saints' lives, and travel literature. Texts and topics include *Beowulf*, Vikings, poems on women, Bede, and King Alfred. P/NP or letter grading.

**141B. Introduction to Old English Language and Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B. Introductory study of Old English language and literature, including grammar and vocabulary, reading and translation of poetry and prose, and discussion of literatures and cultures of Anglo-Saxon England. P/NP or letter grading.

**141C. Topics in Old English (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 141B. Intensive study of Old English literature in original language. Texts and topics may include *Beowulf*, *Vercelli Book*, books of monsters, medical writing, etc. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**141R. Early Medieval Literature: Research Component (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Major poetry and prose of early medieval Britain, including epic, romance, history, saints' lives, and travel literature. Substantial research component included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**142. Later Medieval Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Reading and historical explication of major writers of later medieval Britain (e.g., Gawain-poet, Langland, Gower, Margery Kempe, Malory, miracle and morality plays, prose, and lyrics). P/NP or letter grading.

**142R. Later Medieval Literature: Research Component (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Reading and historical explication of major writers of later medieval Britain (e.g., Gawain-poet, Langland, Gower, Margery Kempe, Malory, miracle and morality plays, prose, and lyrics). Substantial research component included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**143. Drama to 1576 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. English drama from its Latin and Anglo-Norman roots to opening of first public playhouse. P/NP or letter grading.

**144. Medieval Romance and Literatures of Court (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of medieval court culture, exploring concepts of nobility, governance, love, loyalty, and power in range of genres: romance, courtly epic, lyric, debate, and satire. Texts may include Beowulf, Lais of Marie de France, Sir Gawain and Green Knight, Pearl, and Malory's *Morte Arthure*. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**145. Medieval Literatures of Devotion and Dissent (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of devotional genres and their complex relationships with traditions of dissent in medieval English culture, encompassing hagiography, vision, conversion narrative, interreligious debate, heresy trials, and Lollard manifestos and translations. Texts may include *Dream of Rood*, South English Legendary, *Ancrene Wisse*, *Piers Plowman*, Lollard writings, macro-plays, Wakefield cycle, Showings of Julian of Norwich, and *Book of Margery Kempe*. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**146. Medieval Story Cycles and Collections (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of medieval story cycles and story collections as narrative forms. Medieval story cycles engage in complex literary conversations across medieval cultures, periods, genres, and languages, while story collections often stage art of storytelling within narrative frame to invite self-consciousness about powers of literary production itself. Texts may include cycles such as texts gathered as *Matter of Britain*, *Matter of Rome*, or *Matter of France*; also *Mabinogi*, manuscript collections such as *Auchinleck manuscript* or *Exeter book*, framed narratives such as *Decameron*, *Canterbury Tales*, *One Thousand and One Nights*, and Gower's *Confessio Amantis*, or collections of exempla, legends, and dicta. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**147. Medieval Histories, Chronicles, and Records (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Investigation of medieval history writing as literary tradition. Medieval histories survive in every language of medieval Britain, including Latin, Old English, Welsh, Irish, Anglo-Norman French, and Middle English. Multilingual ubiquity of history writing points to pressures of history on history writing—histories are always shaped by political, cultural, linguistic, and textual pressures of present tense. Texts may include histories, chronicles, material records, and historiographically engaged texts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**148. Cultures of Middle Ages (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Interdisciplinary survey of particular medieval societies, with special emphasis on complex interactions between different ethnic and cultural traditions of medieval world. Examination of processes of intercultural encounter and transmission: classical or patristic traditions into medieval culture, crusade, travel literature, and literature of contact zones, including interactions between Celtic, Anglo, and Norman societies, and debates between Pagans, Jews, Christians, and Muslims. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**149. Medievalisms (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of postmedieval production of Middle Ages as period for scholarly study, tactical premodern

other to modern and contemporary, and commodity continually reinvented by postmedieval writers, artists, and popular media. Topics may include 19th-century production of medieval studies and its links to nationalism, notable medievalists and their work, and uses of Middle Ages in popular culture from Umberto Eco to Tolkien, Robin Hood, Arthur, and Merlin. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**150A. Shakespeare: Poems and Early Plays (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet*. P/NP or letter grading.

**150B. Shakespeare: Later Plays (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of representative problem plays, major tragedies, Roman plays, and romances. P/NP or letter grading.

**150C. Topics in Shakespeare (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Introduction to or advancement of student knowledge of Shakespeare's works through broad or specific topics set by instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**151. Milton (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works of Milton, with emphasis on *Paradise Lost*. P/NP or letter grading.

**152. Literatures of English Renaissance and Early Modern Period (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works in their cultural context. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**153. Theatrical Renaissance: Early Modern Texts and Performances (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Topics may include professional and amateur performances in court, cities, churches, and countryside of varied sorts of texts—masques, religious drama, secular drama, charivari—alongside examination of texts, performers, and performance spaces from 1509 to 1642. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**154. Renaissance Worlds (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Variable topics, including travel literature, exploration and expansion, transnational and transoceanic texts, science and cosmography, conceptual worlds of myth and philosophy, as expressed in literature and other arts. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**155. Renaissance Subjects (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Literary representations of personhood in early modern period, with attention to issues such as personal voice, relations of privacy/community, bodies/souls, selves/others, as impacted by quotients such as gender, sexuality, race, and ethnicity as they are understood in period from 1500 to 1700. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**156. Devotion and Dissent (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of religious thought and practice associated with Reformation and Counter-Reformation enterprises in early modern period and consideration of how various types of writing—poems, prayer books, sermons, historical chronicles, essays, travel narratives, trial records—reflect and assess religious ferment of era. Coverage of either broad historical range such as from Henry VIII's break with Rome to execution of Charles I or one specific topic such as varieties of martyrdom, art of confession, or conversion narratives. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**157. Translation and Innovation in English Renaissance and Early Modern Period (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works of English Renaissance literature and culture in relation to literatures of antiquity and continental Renaissance. Topics may include epic tradition, forerunners of novel, Renaissance humanisms, literature of love, monsters and marvels, representing nature, Ovidian transformations. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**159. Topics in Literature, circa 1500 to 1700 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of literatures from or about this time period. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**159R. Topics in Literature, circa 1500 to 1700: Research Component (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of literatures from this time period and conventions

of literary research. Substantial research component included. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**160A. Literature of Restoration and Earlier 18th Century (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works as literary documents and as products of Restoration and earlier 18th-century thought. P/NP or letter grading.

**160B. Literature of Later 18th Century (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of major works as literary documents and as products of later 18th-century thought. P/NP or letter grading.

**161A. Poetry in English to 1850 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Consideration of poetry across genres and throughout period. Topics may include rise of satire, verse forms including Pindaric ode, mock-epic, and verse-epistle, questions of literary imitation and originality, poetry's relationship to empire, and gendering of authorship. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**161B. Drama in English to 1850 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Survey of drama in English until 1850. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**161C. Novel in English to 1850 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Survey of major novelists until 1850. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**162A. Earlier Romantic Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of writings by Blake, Wollstonecraft, W. Wordsworth, Coleridge, and Austen, with collateral readings from such authors as Godwin, Burke, Paine, Radcliffe, Edgeworth, Baillie, C. Smith, Burns, Southey, D. Wordsworth, Lamb, DeQuincey, and Scott. P/NP or letter grading.

**162B. Later Romantic Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Intensive study of writings by Byron, Keats, Percy Shelly, and Mary Shelley, with collateral readings from such authors as Hazlitt, Hunt, Landor, Clare, Moore, Peacock, Landon, Aikin, Hemans, and Prince. P/NP or letter grading.

**163A. Romanticism and Revolution (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of relationships among and between different revolutionary currents—political, economic, and aesthetic—in British Romantic period, developing readings of literary texts that situate them in revolutionary context out of which they emerged, and to which they contributed in turn. Recovery of sense of how literary and extra-literary texts emerged in common relationship; development of deeper understanding of nature of Romanticism itself. Readings from work of Blake, Wordsworth, Coleridge, Southey, Austen, Byron, Keats, Wollstonecraft, and others. May not be repeated for credit. P/NP or letter grading.

**163B. Transatlantic Romanticism (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Transatlantic studies have been central in generating new conceptual frameworks for thinking through complex issues related to interconnectedness of Atlantic rim cultures. With focus on ways in which cultures, ideologies, and political identities are reworked and reinscribed by transatlantic movement of peoples, ideas, and cultural artifacts, expansion of notions of Romanticism to include transoceanic perspectives that understand early 19th-century Romantic literature as transatlantic phenomenon. May not be repeated for credit. P/NP or letter grading.

**163C. Jane Austen and Her Peers (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Coverage of six novels of Jane Austen, as well as literary works that most influenced her: Mary Wollstonecraft's *Vindication of Rights of Woman*, Gothic novel, and Maria Edgeworth's *Belinda*. P/NP or letter grading.

**164A. Earlier 19th-Century Poetry (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Developments in English poetic genres from time of Napoleonic Wars to middle decades of 19th century. Readings enable students to understand legacies of 18th-century and Romantic writing and emergence of new forms such as dramatic monologue and novel-in-verse. P/NP or letter grading.

**164B. 19th-Century Critical Prose (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of traditions in critical thought from 1800 to 1900 in relation to development of cultural and literary criticism, social thought, and political writing. P/NP or letter grading.

**164C. 19th-Century Novel (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of development of novel from 1800 to 1900, with focus on evolution of genre in relation to cultural, social, and political contexts in which readings were composed, circulated, and received. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**164D. Global 19th Century (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of 19th-century literature as global phenomenon. Ways imaginative works engaged with 19th-century global formations, that may include structures and discourses of empire, international law, communication and transport systems, political boundaries and state sovereignty, slave trade, transnational economics, travel and exploration, religious communities, military engagements, and/or cultural conflicts. May not be repeated for credit. P/NP or letter grading.

**165A. Imperial Culture, 1700 to 1850 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Exploration of relationship between culture and imperialism in 18th and 19th centuries. Discussion of relationship between literary and extra-literary texts and shifting patterns and paradigms of imperial rule, as metropolitan and peripheral spaces were transformed beyond recognition in this period. Particular attention to representations of otherness both in emergent metropolitan center and in sites of contact and conquest overseas, shifts in forms of Orientalism, developing concepts of race and nation, and ways imperial culture gradually infused almost every aspect of British culture and literature by middle of 19th century. May not be repeated for credit. P/NP or letter grading.

**165B. Gender, Sexuality, and Body, 1700 to 1850 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Examination of question of gender in literature of period known for its invention of sex/gender system. Topics may include varying representations of gender and sexuality across period, gender and authorship, and literature of embodiment. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**165C. Protestant Dissent and English Literature, 1640 to 1832 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Religious doctrines, political ideologies, cultural practices, and aesthetics of Protestant dissent, with some attention to transatlantic radicalism, but main topic is British dissent. Adaptations of such theologies as Lutheranism, Calvinism, Anabaptism, Unitarianism, and Methodism in Scotland, England, and Wales from English Civil War and Glorious Revolution to Reform Act of 1832. Texts include representative theology and political theory (Luther, Calvin, Locke, Priestley, Paine, Wollstonecraft) and representative poetry and fiction (Milton, Bunyan, Defoe, Blake, Coleridge, Shelley, Byron). P/NP or letter grading.

**166A. Colonial Beginnings of American Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Historical survey of American literatures of discovery and exploration, contact, and settlement, with emphasis on genres that express distinctive colonial identities, myths, and religious visions. P/NP or letter grading.

**166B. American Literature, 1776 to 1832 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Historical survey of American literatures from Revolution through early republic, with emphasis on genres that reflect systematic attempts to create representative national literature and attention to American ethnic, gender, and postcolonial perspectives. P/NP or letter grading.

**166C. American Literature, 1832 to 1865 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Historical survey of American literatures from Jacksonian era to end of Civil War, including emergent tradition of American Romanticism, augmented and challenged by genres of popular protest urging application of democratic ideals to questions of race, gender, and social equality. P/NP or letter grading.

**167A. American Poetry to 1900 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Study of American poetry from Puritan period through end of 19th century. P/NP or letter grading.

**167B. American Fiction to 1900 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Study of American fiction (both novels and short stories) from its beginning to end of 19th century. P/NP or letter grading.

**168. Major American Writers (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A and 10B, or 11 and 87. Broad survey of representative American writers across several centuries, designed to give concise account of broad narrative of American literary development, from origins through 19th century. Includes mainly works that have tradition-



ally been identified as American classics and asks both what makes American literature distinctive and what its relations are to other literatures in English. P/NP or letter grading.

**169. Topics in Literature, circa 1700 to 1850 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A and 10B, or 11 and 87. Examination of literatures from or about this time period. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**169R. Topics in Literature, circa 1700 to 1850: Research Component (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B. Study of literatures from this time period and conventions of literary research. Substantial research component included. Consult Schedule of Classes and departmental descriptions for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**170A. American Literature, 1865 to 1900 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Historical survey of American literature from end of Civil War to beginning of 20th century, including writers such as Howells, James, Twain, Norris, Dickinson, Crane, Chesnut, Gilman, and others working in modes of realist and naturalist novel, regional and vernacular prose, and poetry. P/NP or letter grading.

**170B. American Literature, 1900 to 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Historical survey of American literature from turn of century to end of World War II. P/NP or letter grading.

**170C. American Literature since 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Historical survey of American literature since end of World War II. P/NP or letter grading.

**171A. Later 19th-Century Poetry (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Developments in English poetic genres in relation to significant movements such as aestheticism, decadence, feminism, and imperialism from middle decades of 19th century to turn of 20th century. P/NP or letter grading.

**171B. 20th-Century British Poetry (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Survey of major British poets from 1900 to present. P/NP or letter grading.

**171C. 20th-Century British Fiction (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Survey of major British novelists and short story writers from 1900 to present. P/NP or letter grading.

**172A. Drama, 1850 to 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C (for Theater and Film and Television majors 10A, 10B, 10C requisites are waived). Survey of drama in English, with its principal continental influences, from 1850 through World War II. P/NP or letter grading.

**172B. Drama, 1945 to Present (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, 10C. Study of drama in English, with its principal continental influences, since World War II. P/NP or letter grading.

**172C. American Drama (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American drama from its beginning to present day. Historical period may vary with instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**173A. American Poetry, 1900 to 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American poetry from beginning of 20th century to end of World War II. P/NP or letter grading.

**173B. American Poetry since 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American poetry since end of World War II. P/NP or letter grading.

**173C. Contemporary American Poetry (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American poetry, mostly by living authors, with emphasis on emergent issues and poetic forms. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**174A. American Fiction, 1900 to 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American novels and short stories from beginning of 20th century to end of World War II. P/NP or letter grading.

**174B. American Fiction since 1945 (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American novels and short stories since end of World War II. P/NP or letter grading.

**174C. Contemporary American Fiction (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American novels and short stories, mostly by living authors, with emphasis on emergent issues and aesthetics. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**175. American Nonfictional Prose (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of American nonfictional prose (essays, autobiographies, travel narratives, and other). Particular genre and/or historical period vary with instructor. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**176. Hemispheric American Literature (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Examination of primarily North American literature from hemispheric rather than nation-based perspective. Historic breadth in study of American literature while posing such crucial theoretical issues as emergence of U.S. Empire or relationship between North America and global south, including Africa, Latin America, and Caribbean. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**177. Interdisciplinary Studies of American Culture (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Interdisciplinary study of American literature in its relationships to other disciplines, including art, architecture, film, history, music, politics, and various social sciences, with emphasis on application of literary methodology to historical survey of American culture. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**179. Topics in Literature, circa 1850 to Present (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Examination of literatures from or about this time period. Consult Schedule of Classes for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**179R. Topics in Literature, circa 1850 to Present: Research Component (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, and 10C, or 11 and 87. Study of literatures from this time period and conventions of literary research. Substantial research component included. Consult Schedule of Classes and departmental descriptions for subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**180. Topics in Literature and Language (5)** Seminar, three or four hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**180R. Junior Research Seminar (5)** Seminar, three hours. Enforced requisites: courses 10A, 10B, 10C. Strongly recommended for students who plan to enroll in capstone seminars. Study of range of approaches to literary and cultural research, including archival, literary critical, and theoretical to equip students with skills working with primary sources, secondary criticism, and on-line databases. Specific literatures vary with instructors. May not be repeated for credit. P/NP or letter grading.

**181A. Topics in Genre Studies (5)** Seminar, three or four hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**181B. Topics in Interdisciplinary Studies (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**181C. Topics in Critical Theory (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**181D. Topics in Imperial, Transnational, and Postcolonial Studies (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**182A. Topics in Medieval Literature (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**182B. Topics in Renaissance and Early Modern Literature (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**182C. Topics in 18th-Century Literature (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**182D. Topics in Romantic Literature (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**182E. Topics in 19th-Century Literature (5)** Seminar, three or four hours. Enforced requisites: courses 10A, 10B, 10C. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**182F. Topics in 20th- and 21st-Century Literature (5)** Seminar, three or four hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**183A. Topics in Colonial American Literature (5)** Seminar, three or four hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**183B. Topics in 19th-Century American Literature (5)** Seminar, three or four hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**183C. Topics in 20th- and 21st-Century American Literature (5)** Seminar, three or four hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**184. Capstone Seminar: English (5)** Seminar, three hours. Requisites: courses 10A, 10B, and 10C, or 11 and 87, and completion of at least four upper-division courses required for major. Limited to senior English or American Literature and Culture majors. Students use knowledge from prior coursework to address current topics in discipline and work with faculty members on focused topic of research. Culminating paper or project and class presentation required. May be repeated once for credit with topic or instructor change. Letter grading.

**185. Professional Writing Capstone (4)** (Same as English Composition M185.) Seminar, four hours. Limited to junior/senior Professional Writing minors. Topical writing workshop on rhetorical strategies useful in written and multimodal genres. Intended to provide students with opportunity for serious engagement with writing project in their minor specialization under close faculty supervision and in constructive writing group. Reading, discussion, oral presentations, rhetorical analysis, and development of professional portfolio. Students develop their capstone projects, including identifying appropriate models, generic expectations, and rhetorical choices. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190H. Honors Research Colloquia in English (1)** Seminar, one hour. Enforced corequisite: course 198A or 198B. Designed to bring together students undertaking supervised tutorial research for departmental honors in seminar setting with one or more faculty members to discuss their own work in progress and critical readings related to honors projects. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**191A. Topics in African American Literature (5)** (Same as African American Studies M179A.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in African American literature. Topics may include Harlem Renaissance, African American literature in Nadir, black women's writing, contemporary African American fiction, African American poetry. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191B. Topics in Chicana/Chicano and/or Latina/Latino Literature (5)** (Same as Chicana/o and Central American Studies M139.) Seminar, three or four hours. Enforced requisite: English Composition 3. Variable specialized studies course in Chicana/Chicano and/or Latina/Latino literature. Topics include labor and literature; Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; literary New Mexico; specific literary genres. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191C. Topics in Asian American Literature (5)** (Same as Asian American Studies M191F.) Seminar, three or four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Asian American literature. Topics may include genres (autobiography, novel, poetry, short fiction, or drama); specific nationalities within Asian American community; themes of transnational migration; cross-cultural, interdisciplinary, or interracial negotiation; and gender and queer politics. Reading, discussion, and development of culminating project. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191D. Topics in Queer Literatures and Cultures (5)** (Same as Gender Studies M191D and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M191D.) Seminar, three or four hours. Enforced requisite: English Composition 3. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191E. Topics in Gender and Sexuality (5)** (Same as Gender Studies M191E and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M191E.) Seminar, three or four hours. Enforced requisite: English Composition 3. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191H. Honors Research Seminars: English (5)** Seminar, three hours. Enforced requisite: one course from 120 through 128. Open only to students who are eligible and apply for honors program in English. Introduction to research techniques and study of various approaches and applications of critical methodology as it relates to interpretation and evaluation of texts. Development and presentation of proposals for honors projects. Consult undergraduate adviser. May be repeated for credit. Letter grading.

**191P. Careers in Humanities (4)** (Same as Comparative Literature M191P and Musicology M176.) Seminar, three hours. Challenges misassumptions regarding humanities majors and their practical applications to life after graduation. Exploration of wide range of careers, with hands-on practice in crafting professional narrative. Guest lectures from UCLA professionals and alumni—all experts in career planning and local industry. Students engage with workplace leaders, and simultaneously build professional dossier—on paper or online—in preparation for life after UCLA with a humanities degree. P/NP or letter grading.

**192. Undergraduate Practicum in English: Journals (2)** (Same as English Composition M192.) Seminar, two hours. Training and supervised practicum for undergraduate student editors of campus journals supervised by faculty members in English and/or Writing Programs. May be repeated for credit. P/NP or letter grading.

**193. Colloquia and Speakers' Series Undergraduate Seminars: English (1)**

Seminar, one hour. Limited to undergraduate students. Discussion of current critical literature and/or creative readings by writers, artists, and scholars. Exploration in greater depth of literary topics and creative work presented through sponsored forums, speakers' series, and colloquia. May be repeated for credit. P/NP grading.

**195CE. Community and Corporate Internships in English (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May not be applied toward major requirements. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in EnglishH. (2 to 5)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in English (5)** Tutorial, to be arranged. Requisite: course 191H. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in English (5)** Tutorial, to be arranged. Requisite: course 191H. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in EnglishH. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual literary research and creative projects under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Graduate Proseminar (4)** Seminar, three hours. Introduction to profession of literary studies. Covers wide array of topics including state of discipline; scholarly organizations and conference presentations; critical and methodological approaches to literary studies; writing and publishing for scholarly and general audiences; building curriculum vitae and résumé; developing professional skills; understanding academic job market and humanities careers. S/U or letter grading.

**201. History of Literary Criticism and Aesthetic Interpretation (4)** (Formerly numbered 201A.) Seminar, three hours. Examination of major texts in literary criticism and aesthetic interpretation from classical to contemporary period with focus and topics to be set by individual instructor. S/U or letter grading.

**202. Narrative Theory (4)** Seminar, three hours. Introduction to concepts and theories of narrative. These may include linguistic, sociological, cognitive, and computational approaches to explain elements of narrative such as plot, narrator, character, and style across different media. S/U or letter grading.

**203. Digital Theories and Methods (4)** Seminar, three hours. Theories and practices of using computational tools and methods, including digital archives, for analysis of literary texts across media. S/U or letter grading.

**205A. Study of Oral Tradition: History and Methods (4)** (Same as Scandinavian M271.) Seminar, three hours. Exploration of scholarly and literary attempts to study, define, analyze, promote, and/or appropriate oral traditions, from Homer and ancient Greece to origins of vernacular literatures, European romantic (re)discovery of oral tradition, 20th-century heuristic models of oral composition, and modern-day electronic media and popular verbal genres such as joking and rapping. S/U or letter grading.

**205C. Studies in Oral Traditional Genres (4)** (Same as Scandinavian M273.) Seminar, three hours. Exploration in depth of variety and history of, and scholarship on, particular oral traditional genre (e.g., ballad, song, epic, proverb, riddle, folktale, legend) or set of closely related oral traditional genres. S/U or letter grading.

**210. History of English Language (4)** Lecture, four hours. Detailed study of history, characteristics, and changing forms of English language from its origin until about 1900. S/U or letter grading.

**211. Old English (4)** Lecture, four hours. Study of Old English grammar, lexicon, phonology, and pronunciation to enable students to read literature silently and aloud. Reading of as much of more interesting Old English prose and poetry as can be read in one term. S/U or letter grading.

**212. Middle English (4)** Lecture, four hours. Requisite: course 211. Detailed study of linguistic aspects of Middle English and of representative examples of better prose and poetry. S/U or letter grading.

**215. Paleography of Latin and Vernacular Manuscripts, 900 to 1500 (4)** (Same as Classics M218, French M210, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

**217A. Medieval Welsh (4)** Lecture, four hours. Studies in grammar. Readings in Mabinogi and other texts. Comparative considerations. S/U or letter grading.

**217B. Medieval Welsh (4)** Lecture, four hours. Studies in grammar. Readings in Mabinogi and other texts. Comparative considerations. S/U or letter grading.

**220. Prospectus Workshop (4)** Seminar, three hours. Writing workshop designed for English PhD students who are preparing for their Part II qualifying examinations, typically taken by end of their fourth year. Students draft dissertation prospectus and bibliography by end of quarter. S/U grading.

**230. Workshop: Creative Writing. (2 to 4)** Lecture, two to four hours. Preparation: submission of writing samples in specified genre (poetry, fiction, or drama). May be repeated but may not satisfy more than one of nine courses required for first qualifying examination nor any of five courses required for second qualifying examination. S/U or letter grading.

**242. Language and Literature (4)** Seminar, three hours. Application of linguistics to literary analysis. Individual seminars dealing with one historical period (medieval and Renaissance, neoclassical, or 19th century and modern), specific authors, or contributions of specific groups of linguists to literary analysis. S/U or letter grading.

**244. Old and Medieval English Literature (4)** Seminar, four hours. Studies in poetry and prose of Old and medieval English literature; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**245. Chaucer (4)** Lecture, four hours. May be repeated for credit. S/U or letter grading.

**246. Renaissance Literature (4)** Seminar, four hours. Studies in poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**247. Shakespeare (4)** Lecture, three hours. May be repeated for credit. S/U or letter grading.

**248. Earlier 17th-Century Literature (4)** Lecture, three hours. Studies in poetry and prose of 17th-century English literature up to Restoration; limits of investigation set by individual instructor. S/U or letter grading.

**249. Milton (4)** Lecture, three hours. Studies in poetry and prose of John Milton; limits of investigation set by individual instructor. S/U or letter grading.

**250. Restoration and 18th-Century Literature (4)** Seminar, three hours. Studies in English poetry and prose, 1660 to 1800; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**251. Romantic Writers (4)** Seminar, three hours. May be repeated for credit. S/U or letter grading.

**252. Victorian Literature (4)** Lecture, three hours. Studies in English poetry and prose of Victorian period; limits of investigation set by individual instructor. S/U or letter grading.

**253. 20th- and 21st-Century Literatures in English (4)** Seminar, three hours. Studies in 20th- and 21st-century literatures in English. Focus and topics to be set by individual instructor. May be repeated for credit. S/U or letter grading.

**254. American Literature to 1900 (4)** Lecture, three hours. Studies in Colonial and 19th-century American literature; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**255. Topics in Novel (4)** Seminar, three hours. Thematic approval to study of novel. May be repeated for credit. S/U or letter grading.

**256. Studies in Genre (4)** Seminar, three hours. Formal approach to study of one genre and its changes across time. May be repeated for credit. S/U or letter grading.

**257. Methods and Tools for Study of Literature and Culture (4)** Seminar, three hours. Survey of methods or training in particular set of methods for literary and cultural analysis. Methods may include archival, paleographical, linguistic, historical, sociological, and cognitive approaches. S/U or letter grading.

**259. Studies in Criticism (4)** Lecture, three hours. May be repeated for credit. S/U or letter grading.

**260. Studies in Literature and Its Relationship to Arts and Sciences (4)** Seminar, three hours. Studies in interrelationships of literature, arts, and sciences; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**260A. Topics in Asian American Literature (4)** (Same as Asian American Studies M260.) Seminar, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit. S/U or letter grading.

**261. Studies in Chicana/Chicano Literature (4)** (Same as Chicana/o and Central American Studies M289.) Seminar, three hours. Intensive research and study of major themes, authors, and issues in Chicana/Chicano literature and culture. Examination of political, aesthetic, economic, and cultural context that emerges in Chicana/Chicano discourse; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

**262. Studies in Afro-American Literature (4)** (Same as African American Studies M200E.) Lecture, four hours. Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on aesthetic, cultural, and social backgrounds of Afro-American writing. May be repeated for credit. S/U or letter grading.

**265. Postcolonial Literatures (4)** Seminar, three hours. Study of aesthetic, historical, and social backgrounds to literatures of former British colonies that became independent after 1947. General issues related to way imperialism, colonialism, and postcolonialism have helped to shape and have been shaped by literature in English. May be repeated for credit. S/U or letter grading.

**266. Cultural World Views of Native America (4)** (Same as American Indian Studies M200B.) Seminar, three hours. Exploration of written literary texts from oral cultures and other expressive cultural forms—dance, art, song, religious and medicinal ritual—in selected Native American societies, as these traditional and tribal contexts have been translated into contemporary literary texts (fiction, poetry, essay, and drama). Survey, from secondary sources, of interdisciplinary methodological approaches taken from literary analysis, structural anthropology, folklore, linguistics, and ethnomusicology. May be repeated for credit with instructor and/or topic change. Letter grading.

**270. Issues and Developments in Critical Theory (4)** (Formerly numbered M270.) Seminar, three hours. Investigation of selected trends in critical theory. Topics may include continental philosophy, memory studies, feminist and queer studies, urban studies, environmental humanities, critical race studies, and postcolonialism. S/U or letter grading.

**299. Interdisciplinary American Studies (6)** (Same as History M299.) Discussion, four hours. Readings, discussion, and papers on common theme, team-taught by faculty members from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors. S/U or letter grading.

**490. Publishing Academic Literary Article (4)** Seminar, four hours. Structured as writing workshop. Determination of what publishable article looks like. Independent revision of student work. Circulation of student papers. Class-wide discussion of writing. S/U grading.

**495A. Supervised Teaching Preparation (4)** Seminar, three hours. Required of all applicants for teaching assistantships in English. Introduction to teaching of literature intended to prepare teaching assistants for their first assignments in leading discussion sections. Practical concerns of creating assignments, grading papers, and holding conferences. S/U grading.

**495B. Supervised Teaching Preparation (3)** Seminar, two hours. Required of all teaching assistants in their initial quarter of teaching. Mentoring and group teaching assistant/mentor conferences. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study (2 to 4)** Tutorial, to be arranged. Limited to students preparing for first qualifying examination or engaging in intensive directed research project. May not be applied toward any course requirement for degree. Consult graduate counselor to enroll or obtain information. S/U or letter grading.

**597. Preparation for PhD Examinations (4 to 12)** Tutorial, to be arranged. For second-stage PhD students preparing for second qualifying examination. S/U grading.

**598. MA Research and Thesis Preparation (4 to 8)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward any course requirement for degree. S/U grading.

**599. PhD Dissertation Research (4 to 8)** Tutorial, to be arranged. Limited to PhD candidates unable to enroll in seminars in their fields or to candidates concurrently enrolled in such seminars. (Exception to this rule must be requested by petition.) S/U grading.

# Environment and Sustainability, Institute of the

## Environment Courses

### Lower Division

**M1A. Food: Lens for Environment and Sustainability (6)** (Same as Clusters M1A.) Lecture, three hours; discussion, two hours. Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Food as lens for local and global environmental and sustainability issues. Integration of environmental, social, economic, and technological solutions for fair, sustainable, and healthy food production, food security, and access. Focus on human impacts on Earth's biological and physical systems, including how food production and consumption contributes to, and is impacted by, global problems, including climate change, pollution, and overpopulation. Laboratory exercises included in discussions. P/NP or letter grading.

**1B. Food: Lens for Environment and Sustainability (6)** (Same as Clusters M1B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M1A. Limited to first-year freshmen. Food as lens for local and global environmental and sustainability issues. Integration of environmental, social, economic, and technological solutions for fair, sustainable, and healthy food production, food security, and access. Focus on human impacts on Earth's biological and physical systems, including how food production and consumption contributes to, and is impacted by, global problems, including climate change, pollution, and overpopulation. Laboratory exercises included in discussions. P/NP or letter grading.

**1CW. Food: Lens for Environment and Sustainability—Special Topics (6)** (Same as Clusters M1CW.) Seminar, three hours. Enforced requisite: course M1B. Limited to first-year freshmen. Examination of specialized environmental and sustainability topics as they relate to food, including air, water, biodiversity, climate change, food access, food security, and health. Satisfies Writing II requirement. Letter grading.

**10. Introduction to Environmental Science (4)** Lecture, three hours; laboratory, one hour. Limited to undergraduate students. Introduction to environmental science as discipline and as way of thinking. Discussion of critical environmental issues at local and global scales. Fundamentals of physical, chemical, and biological processes important to environmental science. Laboratory exercises to augment lectures. Letter grading.

**12. Sustainability and Environment (4)** Lecture, three hours; discussion, one hour. Introduction to sustainability with emphasis on environmental component, including Earth's physical, chemical, and biological processes as related to resource demands and management. Examination of application of scientific method in helping to understand and solve sustainability problems. Case studies illustrating how natural and social scientists work on environmental sustainability issues. Focus on global climate change, biodiversity, pollution, and water and energy resources presented in context of creating sustainable human society that is environmentally sound, economically viable, and socially just and equitable. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**25. Good Food for Everyone: Health, Sustainability, and Culture (5)** Lecture, three hours; discussion, one hour. Good food is healthy, sustainably produced, and culturally meaningful. Introduction to basic concepts and history of food systems, food science and nutrition, fair and sustainable food production, natural resources and environmental issues including climate change and biodiversity, agriculture and food policy and law, food distribution and access, cultural identity and artistic engagements with food. P/NP or letter grading.

**30. Environmental Literature and Culture (5)** (Same as English M30.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art)

represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. P/NP or letter grading.

**30SL. Environmental Literature and Culture (Service Learning) (5)** (Same as English M30SL.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to core themes, questions, and methods within interdisciplinary field of environmental humanities. Examination of how different culture forms (e.g., fiction, journalism, poetry, visual art) represent environmental issues. Topics may include biodiversity, wilderness, food, urban ecologies, postcolonial ecologies, environmental justice, and climate change. Service learning component includes meaningful work with off-campus agency/agencies selected by instructor. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

### Upper Division

**M102. Soils and Environment (4)** (Formerly numbered M127.) (Same as Ecology and Evolutionary Biology M127 and Geography M102.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

**102L. Soils and Environment: Field (1)** (Formerly numbered M127L.) (Same as Ecology and Evolutionary Biology M127L and Geography M102L.) Laboratory, one hour; field excursions. Corequisite: course M102. Investigations and demonstrations supporting material in course M102, including excavating, describing, and naming soils in field, soil forming processes, geomorphology, and soils. P/NP or letter grading.

**103. Soil and Water Conservation (4)** (Formerly numbered M114.) (Same as Geography M103.) Lecture, three hours; discussion, one hour. Enforced requisite: one course from course 10, Geography 1, 2, Life Sciences 7B. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, development, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forestry, mining, and other rural uses of land. P/NP or letter grading.

**111. Earth and Its Environment (4)** (Same as Atmospheric and Oceanic Sciences M100.) Lecture, three hours. Overview of Earth as system of distinct, yet intimately related, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Survey of history of Earth and of life on Earth, particularly in relation to evolution of physical world. Consideration of possibility of technological solutions to global environmental problems using knowledge gained during course. Letter grading.

**121. Conservation of Biodiversity (4)** Lecture, three hours; discussion, two hours. Not open for credit to students with credit for Ecology and Evolutionary Biology 116. Examination of interrelation of natural biotic and human systems. Description of distribution of biodiversity and natural processes that maintain it. Critical analysis of various levels of threats and multidimensional challenges required for mitigating threats. Letter grading.

**125. Environmentalism: Past, Present, and Future (4)** (Formerly numbered M132.) (Same as Geography M125 and Urban Planning M165.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to

broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

**126. Environmental Change (4)** (Formerly numbered M130.) (Same as Geography M126.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of natural forces producing environmental changes over past two million years. How present landscape reflects past conditions. Effects of environmental change on people. Increasing importance of human activity in environmental modification. Focus on impact of natural and anthropogenic changes on forests. P/NP or letter grading.

**131. Human Impact on Biophysical Environment (4)** (Formerly numbered M109.) (Same as Geography M131.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of history, mechanisms, and consequences of interactions between humans and environment. Exploration in depth of three thematic topics (deforestation, desertification, and greenhouse gas increase and ozone depletion) and four major subjects (soil, biodiversity, water, and landforms). P/NP or letter grading.

**133. Environmental Sociology (4)** (Same as Society and Genetics M133 and Sociology M115.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

**134. Environmental Economics with Data Analysis (4)** Lecture, three hours. Requisite: one course from Economics 41, Life Sciences 40, Political Science 6, Statistics 10, 12, 13, or other statistical analysis course approved by instructor. Examination of challenges of balancing environmental protection with wants and needs of people in economy. Focus on how to design efficient public policies that meet environmental goals. How to quantify cause-and-effect relationships, for example, between pollution and infant mortality, using non-experimental data. P/NP or letter grading.

**140. Foundations of Environmental Policy and Regulation (4)** Lecture, three hours. Introduction to environmental policy and regulation in U.S. Provides basic knowledge and skills needed to work as professional environmental problem solver. Exploration of environmental harms that are subject to regulation, role of science in informing policy and regulation, evolution of environmental regulation, different types of regulatory instruments, regulatory process, and alternative approaches to environmental decision making. Includes California Environmental Quality Act (CEQA), Proposition 65, California's long-standing leadership role in air pollution control, and state's pioneering efforts in regulating greenhouse gas emissions. P/NP or letter grading.

**147. Critical Analysis of Strategies toward Environmental Justice (4)** (Same as Community Engagement and Social Change M147.) Lecture, three hours. Exploration of and engagement in critical analyses of strategies toward environmental justice including environmental education, civic ecology, environmental stewardship, policy advocacy campaigns, citizen science, community engagement, community planning, and urban tree canopy. Strategies are interwoven across four interconnected modules: community exposure to harm; access to ecosystem benefits and services; lack of diversity and engagement; and utilization of social-ecological systems approach. Students conduct case study analysis of strategies employed in efforts to move toward environmental justice, and develop collective course resource on environmental justice strategies. P/NP or letter grading.

**150. Environmental Journalism, Science Communications, and New Media (4)** Lecture, three hours. Introduction to environmental journalism, science communications, and new media, including weekly guest lectures by prominent successful practitioners in wide variety of media. Focus on technologies, methods, genres, and theories of communicating environmental challenges, exploring solutions, and engaging public in newspapers, television, radio, movies, online, on mobile devices, and through social media. Discussion of possibilities and limitations of different media and importance of communications for environmental science, policy, public understanding, and individual decision making. Production by students of environmental communications in variety of media. P/NP or letter grading.

**153. Introduction to Sustainable Architecture and Community Planning (4)** (Same as Architecture and Urban Design CM153.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Letter grading.

**155. Energy and Society in Time of Climate Change: Moving toward Just Transition (4)** Lecture, three hours. Introduction to energy systems and their regulatory infrastructure, with focus on U.S. and California. History of field of energy including rise of coal mining, development of petroleum both in U.S. and

Middle East, and enrollment of public lands for extraction or collection of energy from fossil deposits and flows. Examination of concept of energy and differences between energy and power. Focus on understanding contemporary energy system, different sources of energy, how energy is transmitted and distributed, and regulatory infrastructure that has arisen around this vast and essential system that provides electricity and natural gas for most commercial and domestic activities. Discussion of challenges and opportunities in current transition away from fossil fuels and progress of just transition in California. P/NP or letter grading.

**157. Energy, Environment, and Development (4)** Lecture, three hours. Requisites: Mathematics 3A and 3B (or 31A and 31B), Physics 1A and 1B (or 6A and 6B). Introduction to basic energy concepts and examination of role of various energy sources, energy conversion technologies, and energy policies in modern life. Analysis of implications of current patterns of energy production and consumption for future economic and environmental well-being. Integration of concepts and methods from physical and life sciences, engineering, environmental science, economics, and public policy. Basic quantitative skills provided to analyze and critique technical, economic, and policy choices to address challenge of balancing economic growth and environmental sustainability. P/NP or letter grading.

**C159. Life-Cycle Assessment (4)** Lecture, three hours. Requisites: Life Sciences 30A and 30B, or Mathematics 3A and 3B (or 31A and 31B). Public discourse about current patterns of production and consumption of energy, and goods and services more broadly, suggest such patterns are environmentally and economically unsustainable. Introduction to basic concept of life-cycle assessment (LCA), including analytical frameworks and quantitative techniques for systematically and holistically evaluating environmental trade-offs presented by different alternatives. Focus on methodology of LCA to compute various material inputs and environmental releases from all activities associated with life cycle (i.e., raw material extraction, processing, end use, and disposal) of products or services. Discussion of strengths and limitations of LCA as tool for decision making. Students perform life-cycle analysis of one technology, product, or service of their choice. Concurrently scheduled with course C259. P/NP or letter grading.

**160. Topics in Environmental Economics and Policy (4)** Seminar, three hours. Requisite: Statistics 12 or 13. Examination of intersection of environmental economics and policy, with focus on testing policy-relevant environmental hypotheses using economics research approach. Invited scholars present research aimed at yielding policy-relevant results on various topics such as climate change, pollution, and transportation. P/NP or letter grading.

**161. Global Environment and World Politics (4)** (Same as Political Science M122B.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: Political Science 20. Politics and policy of major global environmental issues such as climate change, integrating law, policy, and political science perspectives. P/NP or letter grading.

**162. Entrepreneurship and Finance for Environmental Scientists (4)** Lecture, three hours; discussion, one hour. Focus on key entrepreneurial and financial concepts, with emphasis on applications that are vital for implementing environmental solutions in private, public, and nonprofit settings. Topics include basic elements of finance, project evaluation, financial planning, and marketing. Development of entrepreneurial skills to recognize opportunity and transfer ideas into viable projects that are better for environment and that benefit people and communities. Case studies used to equip students with tools necessary to successfully execute environmental goals and objectives. P/NP or letter grading.

**163. Business and Natural Environment (4)** Lecture, three hours. Examination of role of business in mitigating environmental degradation and incentives to be more environmentally responsive. Emphasis on corporate strategies that deliver value to shareholders while responding to environmental concerns. P/NP or letter grading.

**164. Environmental Politics and Governance (4)** (Same as Urban Planning M160.) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

**166. Leadership in Water Management (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of water quality and water supply issues, including interactions between scientific, technological, management, and policy issues. Invited experts, scholars, and practitioners discuss relevant issues such as pollution, climate change, and water infrastructure. Emphasis on solutions involving integrated water supply and wastewater systems. Leadership development through writing instruction and negotiations and media training. P/NP or letter grading.

**167. Environmental Justice through Multiple Lenses (4)** (Same as Public Affairs M161 and Urban Planning M167.) Lecture, three hours. Examination of intersection between race, economic class, and environment in U.S., with focus on issues related to social justice. Because environmental inequality is highly complex phenomenon, multidisciplinary and multipopulation approach taken, using alternative ways of understanding, interpreting, and taking action. P/NP or letter grading.

**170. Environmental Science Colloquium (1)** Seminar, 90 minutes; one field trip. Limited to undergraduate students. Study of current topics in environmental science, including participation in weekly colloquium series and field trips. May be repeated for credit. P/NP grading.

**175. Programming with Big Environmental Datasets (4)** Lecture, three hours. Requisite: Life Sciences 40 or Statistics 12 or 13. Students gain practical experience conducting empirical research by learning how to program using R. Modern empirical research often requires use of powerful statistical software like R. This programming language shares many similarities with other statistical programs, providing students with valuable labor-market skill. P/NP or letter grading.

**180A. Practicum in Environmental Science (4)** Lecture, three hours; discussion, two hours. Enforced prerequisite: Statistics 12 or 13. Limited to Environmental Science majors who have completed 40 or more units of preparation for major courses, including statistics, and 12 or more units of upper-division courses toward major or minor requirements. Examination of case studies and presentation of tools and methodologies in environmental science, building on what students have been exposed to in other courses. Letter grading.

**180B. Practicum in Environmental Science (5)** Lecture, one hour; laboratory, five hours. Requisite: course 180A. Course 180B is requisite to 180C. Limited to junior/senior Environmental Science majors. Investigation of various aspects of one environmental case study representing actual multidisciplinary issue. Particular emphasis on developing skills required for working as professionals in this field. Work may involve site investigations, original data collection and analysis, mapping and geographic information systems, and environmental policy and law issues. Case study to be defined and conducted with collaboration of local agency or nonprofit institution. Letter grading.

**180C. Practicum in Environmental Science (5)** Lecture, one hour; laboratory, five hours. Requisite: course 180B. Limited to junior/senior Environmental Science majors. Investigation of various aspects of one environmental case study representing actual multidisciplinary issue. Particular emphasis on developing skills required for working as professionals in this field. Work may involve site investigations, original data collection and analysis, mapping and geographic information systems, and environmental policy and law issues. Case study to be defined and conducted with collaboration of local agency or nonprofit institution. Letter grading.

**185A. Sustainability Talks (1)** Lecture, two hours. Analysis of principles of sustainability through series of lectures and films by world-renowned faculty members, authors, environmentalists, entrepreneurs, policymakers, and progressive thinkers. May be repeated for credit. P/NP grading.

**185B. Sustainability Action Research (2)** Lecture, two hours; fieldwork, four hours. Investigation of issues of campus sustainability, including energy efficiency, transportation, waste stream management, sustainable food practices, and more by student research to generate coalition of student researchers that, together with faculty members and UCLA staff, strive to make UCLA more sustainable community. May be repeated for credit. Letter grading.

**185C. Sustainability Action Research Leaders (3)** Seminar, two hours; fieldwork, six hours. Students lead research teams to investigate issues of campus sustainability, including energy efficiency, transportation, waste stream management, sustainable food practices, and more to generate coalition of student researchers that, together with faculty members and UCLA staff, strive to make UCLA more sustainable community. May be repeated for credit. Letter grading.

**186. Comparative Sustainability Practices in Local/Global Settings (4)** Fieldwork, four hours. Guided fieldwork and comparative analysis used to assess local sustainability practices and policies in diverse regional or international settings. Emphasis on comparing role of local and regional culture, geography, economic climate, and governmental policies on sustainability awareness and practices. Use of observations, interviews, and unobtrusive measures to document and analyze role and influence of local/global context on sustainability behavior of individuals, small businesses, and other institutions in everyday life. Letter grading.

**187. Careers in Earth System, Environment, and Space Sciences (1)** (Same as Atmospheric and Oceanic Sciences M187 and Earth, Planetary, and Space Sciences M187.) Seminar, one hour. Examination of central role of science in understanding and addressing grand challenges in climate, earth and envi-

ronment, and space exploration through seminars given by scientists, engineers, managers, and entrepreneurs from national laboratories and industry. Includes tour of National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). Students engage speakers on science, career preparation, opportunities for undergraduate internships, and building fulfilling careers. P/NP grading.

**188A. Special Courses in Environment (4)** Lecture, three hours; discussion, one hour (when scheduled). Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**188B. Special Courses in Environment (2)** Lecture, two hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**193. Journal Club Seminars: Environment (1)** Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature of field. May be repeated for credit. P/NP grading.

**195. Community or Corporate Internships in Environmental Science. (2, 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to junior/senior majors. Internship in supervised setting in community agency or business related to environmental science and/or sustainability. Students meet on regular basis with faculty supervisor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required; consult undergraduate adviser. P/NP grading.

**198. Honors Research in Environmental Science. (2 to 4)** Tutorial, four hours. Limited to junior/senior Environmental Science majors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Must be taken for at least two terms and for total of at least 8 units. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Environment. (2 to 4)** Tutorial, two hours. Preparation: submission of written proposal outlining study or research to be undertaken. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Progress report must be submitted to faculty mentor at end of term. Culminating paper or project required. May be repeated for credit, but only 4 units may be taken each term. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Issues and Methods in Environment and Sustainability (4)** Seminar, four hours. Examination of interdisciplinary case studies that approach problems in environment and sustainability as issues with scientific, social, economic, political, philosophical, ethical, historical, cultural, and policy dimensions. Case studies illustrate use of qualitative and quantitative methods of analysis



drawn from natural sciences, social sciences, and humanities. Emphasis on conceptual frameworks for defining environmental problems and implementation of research results in solving real-world problems. S/U or letter grading.

**200B. Issues and Methods in Environment and Sustainability (4)** Seminar, four hours. Requisite: course 200A. Examination of interdisciplinary case studies that approach problems in environment and sustainability as issues with scientific, social, economic, political, philosophical, ethical, historical, cultural, and policy dimensions. Case studies illustrate use of qualitative and quantitative methods of analysis drawn from natural sciences, social sciences, and humanities. Emphasis on conceptual frameworks for defining environmental problems and implementation of research results in solving real-world problems. S/U or letter grading.

**205A. Major Problems in Environment and Sustainability (2)** Seminar, three hours. Yearlong investigation of questions through series of case studies of five of most significant problems in environment and sustainability over last century: Dust Bowl, lead contamination, dichlorodiphenyltrichloroethane (DDT), stratospheric ozone depletion, and tropical deforestation. Questions include how environmental problems become matters of public concern; what tools, techniques, and practices that make problems visible and legible to different publics and that inform possibilities for response are; how efforts aimed at understanding specific problems from different perspectives changed way other environmental problems and larger processes of environmental change are seen and approached; who gets left out in these different ways of seeing, and how do different ways of seeing and governing specific problems facilitate, justify, and compound imposition of harms on particular groups of people. Concurrently scheduled with Law 505A. In progress grading (credit to be given only on completion of courses 205B and 205C).

**205B. Major Problems in Environment and Sustainability (2)** Seminar, three hours. Yearlong investigation of questions through series of case studies of five of most significant problems in environment and sustainability over last century: Dust Bowl, lead contamination, dichlorodiphenyltrichloroethane (DDT), stratospheric ozone depletion, and tropical deforestation. Questions include how environmental problems become matters of public concern; what tools, techniques, and practices that make problems visible and legible to different publics and that inform possibilities for response are; how efforts aimed at understanding specific problems from different perspectives changed way other environmental problems and larger processes of environmental change are seen and approached; who gets left out in these different ways of seeing, and how do different ways of seeing and governing specific problems facilitate, justify, and compound imposition of harms on particular groups of people. Concurrently scheduled with Law 505B. In progress grading (credit to be given only on completion of courses 205C).

**205C. Major Problems in Environment and Sustainability (2)** Seminar, three hours. Yearlong investigation of questions through series of case studies of five of most significant problems in environment and sustainability over last century: Dust Bowl, lead contamination, dichlorodiphenyltrichloroethane (DDT), stratospheric ozone depletion, and tropical deforestation. Questions include how environmental problems become matters of public concern; what tools, techniques, and practices that make problems visible and legible to different publics and that inform possibilities for response are; how efforts aimed at understanding specific problems from different perspectives changed way other environmental problems and larger processes of environmental change are seen and approached; who gets left out in these different ways of seeing, and how do different ways of seeing and governing specific problems facilitate, justify, and compound imposition of harms on particular groups of people. Concurrently scheduled with Law 505B. S/U or letter grading.

**235. Modern Environmental Statistics (4)** (Same as Statistics M235.) Seminar, three hours. Limited to graduate students. Requisites: undergraduate level calculus, linear algebra, and introductory statistics; scientific computing. Introduction to statistical approaches in environmental science, with focus on climate science. Topics include Bayesian modeling, hypothesis testing, regression, causality, multidimensional data analysis, time series modeling, and extreme value analysis. Draws upon relevant examples in scientific literature. S/U or letter grading.

**250. Tools for Sustainability Assessment (4)** Lecture, three hours. Recommended preparation: introductory course in industrial ecology, ecological economics, environmental economics, business and management, or public policy analysis. Public discourse about implications of current patterns of production and consumption of energy and various goods and services suggests such patterns are unsustainable. What is meant by sustainability and how is it quantified? Focus on concepts and tools to assess sustainability at micro-level of individuals, products, or firms using various techniques, including life-cycle assessment, input-output analysis, and cost-benefit analysis. Exploration of sustainability at macro-level for one entire economy or nation. Discussion of usefulness and limitations of various metrics as guide for public and private decision making. S/U or letter grading.

**C259. Life-Cycle Assessment (4)** Lecture, three hours. Requisites: Life Sciences 30A and 30B, or Mathematics 3A and 3B (or 31A and 31B). Public discourse about current patterns of production and consumption of energy, and goods and services more broadly, suggest such patterns are environmentally and economically unsustainable. Introduction to basic concept of life-cycle assessment (LCA), including analytical frameworks and quantitative techniques for systematically and holistically evaluating environmental trade-offs presented by different alternatives. Focus on methodology of LCA to compute various material inputs and environmental releases from all activities associated with life cycle (i.e., raw material extraction, processing, end use, and disposal) of products or services. Discussion of strengths and limitations of LCA as tool for decision making. Students perform life-cycle analysis of one technology, product, or service of their choice. Concurrently scheduled with course C159. S/U or letter grading.

**260. Information, Technology, Business, and Society (4)** Seminar, three hours. Interdisciplinary research seminar to bring sound social sciences methods to latest technology developments to design effective information-based solutions to social problems. Topics include selection and framing of research questions, developing measurements, designing appropriate methods (e.g., surveys, experiments, using available data), ethical issues, and writing up research proposals. S/U or letter grading.

**277. Leaders in Sustainability (4)** Lecture, three hours. Common course for all students participating in Leaders in Sustainability Program, including those from engineering, law, management, public affairs, public health, natural and social sciences, and others. Creation of environment for academically based discussions on various sustainability-related themes, capitalizing on wide mix of disciplines represented among participating students. Sessions feature UCLA faculty members, external speakers, and leadership skills to help students learn more about how to best put their interests in sustainability to use. Letter grading.

**290. Seminar in Environment and Sustainability (2)** Seminar, 90 minutes. Seminars sponsored by Institute of the Environment and Sustainability and other units. Planning and execution of presentations on topics of choice. Emphasis on development of communication skills. May be repeated for credit. S/U grading.

**297A. Advanced Topics in Environment and Sustainability (4)** Seminar, four hours. Advanced study and analysis of variable current topics in environment and sustainability. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. S/U or letter grading.

**297B. Advanced Topics in Environment and Sustainability (2)** Seminar, two hours. Advanced study and analysis of variable current topics in environment and sustainability. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. S/U or letter grading.

**400. Environmental Science and Engineering Problems Course (8)** Seminar, eight hours. Primarily designed for environmental science and engineering doctoral students. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. May be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual or Tutorial Studies (2 to 8)** Tutorial, to be arranged. Supervised investigation of advanced environmental problems. S/U grading.

**599. Doctoral Dissertation Research (2 to 12)** Tutorial, to be arranged. Limited to students who have advanced to doctoral candidacy. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

# Environmental Health Sciences

## Environmental Health Sciences Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

### Upper Division

**100. Introduction to Environmental Health (4)** Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Limited to nonmajors. Not open for credit to students with credit for course 120. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants. P/NP or letter grading.

**101. Fundamentals of Chemistry in Environmental Health (3)** Lecture, three hours; discussion, one hour. Guided tutorial on fundamental chemical concepts that are important for public health students that either do not have strong background in chemistry or who have not recently taken chemistry class and want to refresh their knowledge. Discussion of examples relevant to environmental health more broadly in each topic area and used to illustrate why understanding fundamental chemical concepts are important. Interactive study with focus on core chemical concepts. Recommended to be taken before or concurrently with introductory courses. P/NP or letter grading.

**112. Fundamentals of Occupational Exposure and Techniques (4)** Lecture, three hours; laboratory, one hour. Examination of occupational exposure agents and technical skills to quantify airborne agents causing worker's exposure. Topics include sampling strategy, method and design, exposure quantification of airborne agents, sampling device operation and calibration, interpretation of exposed agents and data, and technical report writing. P/NP or letter grading.

**120. Environment and Health (5)** Lecture, three hours; discussion, one hour. Limited to Public Health majors. Not open for credit to students with credit for course 100. Examination of scientific principles and methods of field, as well as translation of science to environmental health practice. Topics include environmental stressors and their health effects, regulations and policy, equity and justice, and systems thinking. Acquisition of skills important for public health professionals, such as application of scientific information to real-world problems and ability to communicate effectively with different stakeholders. Letter grading.

**C125. Atmospheric Transport and Transformations of Airborne Chemicals (4)** Lecture, four hours. Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone

depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. Concurrently scheduled with course C225. P/NP or letter grading.

**C135. Environmental Policy for Science and Engineering (4)** Lecture, four hours. Limited to senior undergraduate and graduate students. Examination of theoretical underpinnings of several major types of regulatory policy, as well as practical issues involved in implementing and enforcing each. Exploration of selection and impact of regulatory forms from variety of disciplines and viewpoints. Focus on traditional command and control regulation (including self-executing performance standards and permitting), market-based regulation (such as emissions trading), remediation, and emerging regulatory approaches such as management-based regulation and alternatives assessment. Issues of compliance and enforcement. Concurrently scheduled with course C235. P/NP or letter grading.

**C140. Fundamentals of Toxicology (4)** Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Concurrently scheduled with course C240. Letter grading.

**C152D. Properties and Measurement of Airborne Particles (4)** Lecture, four hours. Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Concurrently scheduled with course C252D. P/NP or letter grading.

**C157. Risk Assessment and Standard Setting (4)** Seminar, four hours. Requirement: course C140. Designed to provide students with opportunity to review scientific basis for association of selected occupational and environmental exposures with disease. Special emphasis on critical evaluations of literature. Attention specifically to interface of science and regulatory standards. Concurrently scheduled with course C257. P/NP or letter grading.

**C164. Fate and Transport of Organic Chemicals in Aquatic Environment (4)** Lecture, four hours. Recommended requisites: Chemistry 14A and 14B, or 20A and 20B. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. Concurrently scheduled with course C264. P/NP or letter grading.

**166. Environmental Microbiology (4)** (Same as Civil Engineering M166.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: Civil Engineering 153. Microbial cell and its metabolic capabilities, microbial genetics and its potentials, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

**166L. Environmental Microbiology Laboratory (2)** (Same as Civil Engineering M166L.) Lecture, one hour; laboratory, two hours; outside study, two hours. Requisite: course M166 (may be taken concurrently). General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading.

**170. Climate Change and Public Health (4)** Lecture, three hours; discussion, one hour. Requisite: course 100 or 120 or C185A. Preparation: introductory statistics course. Introduction to critical issues of global environmental change with focus on climate change as related to consequences for human health and wellbeing. Exploration of physical mechanisms that drive anthropogenic climate change. Examination of direct and indirect pathways through which environmental changes influence health and potential solutions. P/NP or letter grading.

**C185A. Foundations of Environmental Health Sciences (4)** Lecture, four hours. Preparation: one year of undergraduate biology and chemistry. Introduction to field of environmental health sciences designed for students pursuing concentration in environmental health or Public Health minors. Examination of series of topics relevant to science of environmental and occupational health (e.g., climate change, ecology, microbiology, and toxicology) by introducing scientific basis from ecological perspective and describing how topics relate to health on a biochemical and molecular basis. Emphasis on scientific aspects of field, with focus on critique of primary literature and quantitative approaches for examination of topics to provide skills that are critical to perform research. Concurrently scheduled with course C200A. Letter grading.

**C185B. Foundations of Environmental Health Sciences for Public Health Professionals (2)** Lecture/seminar, two hours. Preparation: 4 units each of undergraduate chemistry and biology. Future environmental health and public health leaders must understand vocabulary and systems issues related to local, regional, and global environmental factors affecting public health. Development of content knowledge and thought processes to effectively analyze environmental health problems and development, implementation, and leading of actions to address these problems. Supplements content presented in Public Health 200A and 200B and Environment 100. Concurrently scheduled with course C200B. Letter grading.

**C185C. Foundations of Environmental Health Sciences (6)** Lecture, four hours; group project, two hours. Enforced prerequisite: course C185A or C185B. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Concurrently scheduled with course C200C. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**C200A. Foundations of Environmental Health Sciences (4)** Lecture, four hours. Preparation: one year of undergraduate biology and chemistry. Introduction to field of environmental health sciences designed for students pursuing MS, MPH, and PhD degrees. Examination of series of topics relevant to science of environmental and occupational health (e.g., climate change, ecology, microbiology, and toxicology) by introducing scientific basis from ecological perspective and describing how topics relate to health on a biochemical and molecular basis. Emphasis on scientific aspects of field, with focus on critique of primary literature and quantitative approaches for examination of topics to provide skills that are critical to perform research. Concurrently scheduled with course C185A. Letter grading.

**C200B. Foundations of Environmental Health Sciences for Public Health Professionals (2)** Lecture/seminar, two hours. Preparation: 4 units each of undergraduate chemistry and biology. Future environmental health and public health leaders must understand vocabulary and systems issues related to local, regional, and global environmental factors affecting public health. Development of content knowledge and thought processes to effectively analyze environmental health problems and development, implementation, and leading of actions to address these problems. Supplements content presented in Public Health 200A and 200B and Environment 100. Concurrently scheduled with course C185B. Letter grading.

**C200C. Foundations of Environmental Health Sciences (6)** Lecture, four hours; group project, two hours. Enforced prerequisite: course C200A or C200B. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Concurrently scheduled with course C185C. Letter grading.

**200D. Policy Analysis for Environmental Health Science (4)** Lecture, two hours; discussion, two hours. Designed for second-year Environmental Health Sciences MS and MPH students. Practice-focused synthesization and application of content from prior courses to analyze current environmental health policy issues. Students learn fundamentals of environmental health law, regulatory frameworks, communication strategies, approaches for working with community-based organizations, and policy analysis methods. Focus on environmental and occupational health and policy aspects of single case study. S/U or letter grading.

**201. Seminar: Health Effects of Environmental Contaminants (2)** Seminar, two hours. Requisites: courses C200A or C200B and C200C. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. May be repeated for credit. S/U or letter grading.

**202. Seminar: Environmental Chemistry (2)** Seminar, one hour. Requisites: courses C200A, C200B, 410A, 410B. Environmental chemistry aspects of environmental health sciences through multimedia analyses and biological and microbiological analyses. May be repeated for credit. Letter grading.

**203. Seminar: Ecotoxicology (2)** Seminar, two hours. Discussion of various topics in ecotoxicology. Topics vary from term to term and include aspects of environmental chemistry, toxicology, and ecology. May be repeated for credit. S/U grading.

**204. Seminar: Exposure Assessment (2)** Seminar, two hours. Discussion of various topics in exposure assessment. Topics vary by term and include aspects of population activity, microenvironments, types of monitoring (outdoor, indoor, personal, biomarkers), and multimedia sources of exposure. S/U grading.

**205. Environmental Health Sciences Doctoral Seminar (2)** Seminar, two hours. Limited to environmental health sciences doctoral students. Presentation of current research of environmental health sciences doctoral students. May be repeated for credit. S/U grading.

**206. Seminar: Applied Coastal Ecology (2)** Seminar, two hours. Discussion of various topics in applied coastal ecology. Topics vary by term and include wetland ecology, restoration ecology, and ecology and management of coastal watersheds. May be repeated for credit. S/U grading.

**207. Introduction to Geographic Information Systems (4)** Lecture, two hours; laboratory, two hours. Introduction to geographic information systems (GIS), including use of GIS software, mapping, geocoding, and data analysis. S/U or letter grading.

**208. Built Environment and Health (4)** Lecture, three hours; discussion, one hour. Limited to public health and urban planning graduate students. Interdisciplinary course on built environment and health and breaking down silos. U.S. and other developed, as well as developing, countries are facing increasingly lethal and costly epidemics of acute and chronic diseases related to land use and built environment decisions. While hazards presented by air and water pollution are well recognized for acute, infectious, and toxicological illnesses, there is increasing recognition of hazards presented by building and community designs that fail to recognize human health. Land use and built environment decisions impact every age group and social and racial minority. Impacts range from very acute (motor vehicle trauma) to long term (obesity, cancer, heart disease). Decisions have as their bases economic, financial, insurance, housing, and other factors. Analysis of each factor and related disease endpoints. S/U or letter grading.

**209. Practical Applications in Environmental Health Sciences (2)** Lecture, two hours. Enforced requisites: courses C200A, C200B. Description of many leading environmental and occupational health problems that environmental health practitioners face today, conducted as series of lectures, assignments, hands-on field exercises, and group projects, to help students develop skills necessary to integrate concepts across disciplines in field of environmental health. May satisfy some requirements needed to qualify for Registered Environmental Health Specialist (REHS) certification. S/U or letter grading.

**212. Applied Ecology (4)** Lecture, four hours. Preparation: one ecology course. Application of ecological theory and principles to solve environmental problems, including conservation biology, assessment of environmental impacts, and restoration ecology and mitigation of environmental impacts. Letter grading.

**213. Seminar: Practical Aspects of Biosafety and Biosecurity (2)** Seminar/discussion, two hours. Preparation: one year of introductory biology. Recommended prerequisite: Microbiology 101 or 102. Designed for environmental health sciences graduate students and students in UCLA Biosafety Training Program. Interactive seminar with focus on critical concepts in and practical aspects of biosafety, biosecurity, risk assessment, and risk management that are needed for individuals wishing to serve as interns in UCLA biosafety program and/or become biosafety professionals. S/U or letter grading.

**214. Children's Environmental Health: Prenatal and Postnatal (4)** Lecture, four hours. Preparation: one year each of chemistry and biology. Examination of how environmental exposures to chemical, physical, and biological agents during period of maturation (from fertilization to adulthood) cause pathophysiological perturbations in homeostasis at any stage during life. Letter grading.

**215. Fundamentals of Health Impact Assessment (4)** Seminar, four hours. Provides students with sound understanding of health impact assessment (HIA) practice, its rationale and underlying principles, and opportunities to develop and apply HIA skills in work with public agencies and community-based organizations. Focus on problem solving around case-study HIAs and student experiences working on HIA-related projects. S/U or letter grading.

**216. Planetary Health: Consequences of Environmental Change for Human Health (4)** Seminar, three hours. Planetary health is emerging interdisciplinary field that explores connections between environmental change and public health. Human-caused impacts on natural systems that have subsequent effects on human health include changes in land use, food systems, biodiversity, air pollution, and water availability. Our ability to understand planetary health requires synthesizing information from diverse academic disciplines across spatial and temporal scales, including atmospheric and climate sci-

ence, ecology, epidemiology, and policy. Students from environmental health sciences and related fields learn how to interpret studies from scientific literature that discuss various aspects of planetary health, from drivers of environmental change to human health outcomes, integrate information across multiple scientific fields, and communicate planetary health research through oral presentation and written report. S/U or letter grading.

**217. Graduate Seminar in Environmental Economics and Policy (4)** (Same as Public Policy M217.) Seminar, four hours. Preparation: undergraduate-level statistics, basic undergraduate microeconomics. Introduction to applied scholarship in environmental economics and policy. Enables students to become more proficient consumers and producers of social science research that explores questions of environmental policy and sustainability broadly construed. Topics include health and economic impacts of climate change, adaptation to climate change, efficient and equitable design of environmental policies (e.g., cap and trade, carbon taxes). Developmental of detailed empirical research proposal and short presentation. Letter grading.

**218. Science Communication: Art and Practice of Science Storytelling (4)** Lecture, three hours. Students from environmental health sciences focus on communicating with diverse audiences through visual communication. Study of science of science communication and importance of narrative and storytelling to producing engaging science communication. Applying these skills to their own research topics and interests, students develop two pieces of science communication, video and photo/infographic project. Through learning fundamentals of good public communication, students also advance their peer communication. S/U or letter grading.

**219. Environmental Health Disparities (4)** Seminar, three hours. Designed for advanced graduate students who have completed foundational coursework in environmental health sciences. Exploration of disproportionate health burden experienced by low income communities and communities of color in U.S. due to environmental hazards. Study of social, economic, and political forces that create inequitable burdens of environmental pollution. Covers theoretical frameworks and analytic tools for understanding cumulative impacts of environmental and social inequalities on health. Case studies, research, and policy debates used to explore challenges and opportunities for addressing environmental racism and advancing environmental justice. S/U or letter grading.

**220. Overview of Environmental Public Health Microbiology (2)** Lecture, two hours. Preparation: one course in biology. Introduction to environmental public health microbiology. Focus on human-disease-causing organisms. Covers bacteria, viruses, fungi, protozoa or protists, prions, and algae. Consideration of infectious diseases and of toxins produced by these microbes. Addresses how infectious agents interact with human immune system. Overview of this wide variety of microbial topics. S/U or letter grading.

**221. Climate Change, Equity, and Health (4)** Lecture, two hours; discussion, two hours. Basic foundation in physical mechanisms of, responses to, and health implications of human-induced climate change. Exploration of variety of epidemiologic, risk assessment, and statistical methods used to understand impacts of climate change on health across diverse demographic groups; including efforts to estimate current and future global burden of disease due to climate change, as well as avoidable and attributable risk. Elaboration of public health implications, positive and negative, of efforts to mitigate and adapt to climate change, including discussions of ethical, political, and economic aspects of these efforts. Emphasis on how adverse effects of climate change are borne disproportionately by vulnerable people and groups. Students are responsible for leading class discussions and presenting poster on their choice of topic related to climate change and health. S/U or letter grading.

**C225. Atmospheric Transport and Transformations of Airborne Chemicals (4)** Lecture, four hours. Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. Concurrently scheduled with course C125. S/U or letter grading.

**230A. Interdisciplinary Occupational Health Practice (2)** Seminar, one hour; fieldwork, one hour. Multidisciplinary nature of occupational health practice featured and explored in these varied-activity courses, including material related to recognition, prevention, surveillance, and management of work-related health problems that occupational health and safety researchers and professionals encounter in various work environments. Lectures, seminars, field exercises, workshops, clinical case conferences, and group assignments combined to help students develop skills necessary to integrate and communicate relevant approaches to occupational hazard detection and control,

work-related injury and illness surveillance, and disease and disability prevention from different disciplines in field of occupational health and safety. S/U grading.

**230B. Interdisciplinary Occupational Health Practice (2)** Seminar, one hour; fieldwork, one hour. Multidisciplinary nature of occupational health practice featured and explored in these varied-activity courses, including material related to recognition, prevention, surveillance, and management of work-related health problems that occupational health and safety researchers and professionals encounter in various work environments. Lectures, seminars, field exercises, workshops, clinical case conferences, and group assignments combined to help students develop skills necessary to integrate and communicate relevant approaches to occupational hazard detection and control, work-related injury and illness surveillance, and disease and disability prevention from different disciplines in field of occupational health and safety. S/U grading.

**230C. Interdisciplinary Occupational Health Practice (2)** Seminar, one hour; fieldwork, one hour. Multidisciplinary nature of occupational health practice featured and explored in these varied-activity courses, including material related to recognition, prevention, surveillance, and management of work-related health problems that occupational health and safety researchers and professionals encounter in various work environments. Lectures, seminars, field exercises, workshops, clinical case conferences, and group assignments combined to help students develop skills necessary to integrate and communicate relevant approaches to occupational hazard detection and control, work-related injury and illness surveillance, and disease and disability prevention from different disciplines in field of occupational health and safety. S/U grading.

**C235. Environmental Policy for Science and Engineering (4)** Lecture, four hours. Limited to senior undergraduate and graduate students. Examination of theoretical underpinnings of several major types of regulatory policy, as well as practical issues involved in implementing and enforcing each. Exploration of selection and impact of regulatory forms from variety of disciplines and viewpoints. Focus on traditional command and control regulation (including self-executing performance standards and permitting), market-based regulation (such as emissions trading), remediation, and emerging regulatory approaches such as management-based regulation and alternatives assessment. Issues of compliance and enforcement. Concurrently scheduled with course C135. Letter grading.

**C240. Fundamentals of Toxicology (4)** Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Concurrently scheduled with course C140. Letter grading.

**241. Advanced Concepts in Gene-Environment Interactions (4)** (Same as Molecular Toxicology M247.) Lecture, three hours; discussion, one hour. Comprehensive and practical examination of emerging science of gene-environment interaction. Discussion of primary components of field, including role of metabolic pathways in modifying environmental responses and importance of environmental influences in human disease. Exploration of selected hot topics in field, such as importance of epigenetics and of microbiome. S/U or letter grading.

**C252D. Properties and Measurement of Airborne Particles (4)** Lecture, four hours. Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Concurrently scheduled with course C152D. S/U or letter grading.

**252E. Identification and Measurement of Gases and Vapors (4)** Lecture, three hours; discussion, one hour; outside study, two hours. Preparation: one year each of chemistry, physics, and calculus. Theoretical and practical aspects of industrial hygiene sampling and measurement of gases and vapors. Letter grading.

**252F. Industrial Hygiene Measurements Laboratory (3)** Laboratory, three hours. Corequisites: courses C252D, 252E. Limited to industrial hygiene majors. Laboratory methods for sampling, measurement, and analysis of gases, vapors, and aerosols found in occupational environment. S/U or letter grading.

**252G. Industrial and Environmental Hygiene Assessment (4)** Lecture, one hour; discussion, two hours; laboratory, two hours; outside study, four hours. Requisites: courses C200A, C200B, C252D, 252E, 252F. Environmental and industrial hygiene sampling strategies and assessment via walk-through surveys, lectures, group discussion, actual field measurements, laboratory calibrations, and analyses and reports, with emphasis on chemical, physical, and ergonomic hazards. Letter grading.

**253. Physical Agents in Work EnvironmentT. (2 to 4)** Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Physics, measurement methods, health effects, and control methods for radiation (ionizing and non-ionizing), noise, and thermal stress in workplace environment. S/U or letter grading.

**255. Control of Airborne Contaminants in Industry (4)** Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Requisite: course C252D. Principles and applications of control technology to industrial environments, including general and local exhaust ventilation, air cleaning equipment, and respiratory protection. S/U or letter grading.

**256. Biological and Health Surveillance Monitoring in Occupational/Environmental Health (4)** Lecture, three hours; discussion, one hour; assignments, three hours. Principles and applications of biological monitoring and health surveillance to assess occupational and environmental exposures to organic and inorganic chemicals and physical factors. Letter grading.

**C257. Risk Assessment and Standard Setting (4)** Seminar, four hours. Requisite: course C240. Designed to provide students with opportunity to review scientific basis for association of selected occupational and environmental exposures with disease. Special emphasis on critical evaluations of literature. Attention specifically to interface of science and regulatory standards. Concurrently scheduled with course C157. S/U or letter grading.

**258. Identification and Analysis of Hazardous Wastes (4)** Lecture, three hours; discussion, one hour; laboratory, one hour; one field trip. Requisite: course 252E. Designed to define, identify, label, and quantify hazardous wastes and how workers should be protected. Provides critical understanding of all analytical aspects of hazardous wastes, health aspects, and regulation and practice of handling hazardous wastes. Letter grading.

**259A. Occupational Safety and Ergonomics (4)** Lecture, four hours. Overview of most frequent and severe occupational injuries and illnesses, their distribution, causes, analysis methods, and control approaches, including low back pain, falls, machine exposures, upper extremity musculoskeletal disorders, fleet safety, and selected ergonomics topics. Letter grading.

**259B. Workplace Safety (2)** Lecture, two hours. Introduction to broad range of topics in workplace safety through lectures on safety hazards, their classification, metrics, control philosophy, and control methods. Specific topics include traditional safety rubrics, such as fall hazards, machine safety, and fire hazards. Introduction to concepts of safety culture and philosophy. Review and presentation of peer-reviewed articles on topics relevant to course material. Letter grading.

**260. Occupational Epidemiology (4)** (Same as Epidemiology M261.) Lecture, three hours. Requisites: Epidemiology 100; for Epidemiology majors, Epidemiology 200A, 200B, 200C. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading.

**261. Chemical Behavior of Aquatic Systems (4)** Lecture, three hours. Requisites: courses C200A, C200B, Chemistry 20A, 20B, Mathematics 3A. Chemistry of ocean waters, rivers, groundwaters, and water treatment systems. Topics include thermodynamics of natural waters, acids and bases, carbon dioxide cycle, solubility reactions, oxidation and reduction, plus applied problems. Letter grading.

**C264. Fate and Transport of Organic Chemicals in Aquatic Environment (4)** Lecture, four hours. Preparation: bachelor's degree in science, engineering, geophysics, chemistry, biology, or public health. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. Concurrently scheduled with course C164. S/U or letter grading.

**270. Work and Health (4)** (Same as Community Health Sciences M278.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading.

**280. Nanomaterial-Related Emerging Technologies: Exposure and Health Effects (4)** Seminar, three hours; activity, one hour. Students gain understanding of exposure and health effects of nanomaterials and related technologies, and of approaches to control exposure risks to workers and public. Students develop foundation for advanced studies in topics regarding nanomaterial-related emerging technologies. Topics include nano- and advanced materials and their developments; electronic products containing toxic substances and nanomaterials; nanotechnology-enabled products, their liability and regulatory compliance; exposure issues related to these materials and

products throughout life cycle, including occupational and environmental perspectives; and biological mechanisms in humans from exposure intakes to post-exposure effects. S/U or letter grading.

**296A. Research Topics in Environmental Health Sciences: Psychosocial Factors and Occupational Health (2)** Research group meeting, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296B. Research Topics in Environmental Health Sciences: Teratogenesis (2)** Research group meeting, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296C. Research Topics in Environmental Health Sciences: Social Inequality and Environment (2)** Research group meeting, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296G. Research Topics in Environmental Health Sciences: Advances in Aerosol Technology (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296H. Research Topics in Environmental Health Sciences: Occupational and Environmental Exposure Assessment (2)** Research group meeting, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296I. Research Topics in Environmental Health Sciences: Industrial and Environmental Hygiene (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296J. Research Topics in Environmental Health Sciences: Work, Fertility, and Family (2)** Research group meeting, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296K. Research Topics in Environmental Health Sciences: Aquatic Chemistry (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296L. Research Topics in Environmental Health Sciences: Water Science and Health (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296M. Research Topics in Environmental Health Sciences: Experimental and Modeling Studies of Atmospheric Pollution (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296N. Research Topics in Environmental Health Sciences: Genetic Toxicology (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296O. Research Topics in Environmental Health Sciences: Built Environment and Health (2)** Research group meeting, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296P. Research Topics in Environmental Health Sciences: Global Environmental Change and Health (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296Q. Research Topics in Environmental Health Sciences: Occupational and Environmental Exposure Assessment, Industrial Hygiene, and Advances in Emerging Technology (2)** Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**400. Field Studies in Environmental Health Sciences (4)** Fieldwork, to be arranged. Field observation and studies in selected community environmental health organizations. Students must file field placement and program training

documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 62-unit minimum total required for MPH degree. Letter grading.

**401. Environmental Measurements (4)** Lecture, two hours; laboratory, four hours. Requisites: courses C200A, C200B, Chemistry 20A, 30AL. Instrumental methods for laboratory and field applications to assess quantity of environmental pollutants in air, food, and water, and to assess degree of exposure to such factors as noise and radiation. Letter grading.

**410A. Instrumental Methods in Environmental Sciences (4)** Lecture, four hours; discussion, two hours; other, two hours. Preparation: one year each of physics, chemistry, and biology. Theory and principles of instrumental methods through lectures and group discussions. Letter grading.

**410B. Instrumental Methods Laboratory in Environmental Health Sciences (4)** Lecture, one hour; discussion, one hour; laboratory, four hours; other, two hours. Preparation: one year each of physics, chemistry, and mathematics. Requisites: courses C200A, C200B. Laboratory techniques and instrumentation used in preparation and analysis of biological, environmental, and occupational samples. Letter grading.

**411. Environmental Health Sciences Seminar (2)** Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health in science, policy, and leadership. Speakers who are leading thinkers at interface of health and environment address important subjects of environmental health. May be repeated for credit. S/U grading.

**414A. Research Methods and Effective Communication in Environmental Health Sciences (2)** Lecture, two hours. Prepares doctoral students in environmental health sciences and related fields for skills needed to undertake dissertation. Skills including performing literature searches, designing research study, proposing specific aims, forming testable hypotheses, completing Institutional Review Board (IRB) application, choosing data collection methods, data management, analysis, and interpretation; and writing research proposal. Students complete pilot research proposal for submission for funding. S/U or letter grading.

**414B. Research Methods and Effective Communication in Environmental Health Sciences (2)** Lecture, two hours. Prepares doctoral students in environmental health sciences and related fields for skills needed to undertake dissertation. Skills including performing literature searches, designing research study, proposing specific aims, forming testable hypotheses, completing Institutional Review Board (IRB) application, choosing data collection methods, data management, analysis, and interpretation; and writing scientific paper and presenting research results. Students complete manuscript for submission to peer-reviewed journal. S/U or letter grading.

**450. Case Studies in Regulatory Decision-Making: How Government Agencies Are Influenced to Delay Abatement of Local Health Threats (2)** Seminar, two hours. Requisites: course C200A or Public Health 200A or equivalent. Examination of process in which regulatory decisions are made. Review of several

case studies in which industrial operations resulted in discharge of toxic chemicals to air, soils, or surface waters, and subsequently threatened health of adjoining community; this is common scenario for which California's health-protective regulatory process was designed. Through review of response of state and local agencies in these cases, examination of how private interests can influence regulatory decisions, rendering process ineffective in abating health threats, especially in some of California's most vulnerable communities. As practitioners in public health, consideration of how framing of complex regulatory decision in public health terms can be vital to gaining support of policymakers and public. S/U or letter grading.

**454. Health Hazards of Industrial Processes (4)** Lecture, two hours; field trips, four hours. Requisite: course 255. Industrial processes and operations and occupational health hazards that arise from them. Letter grading.

**461. Water Quality and Health (4)** Lecture, three hours; discussion, one hour. Requisites: courses C200A, C200B, 401. Introduction to water quality, with coverage of hydrology, water chemistry, and various chemical contaminants that may affect human health. Various treatment methods and health implications. S/U or letter grading.

**471. Improving Worker Health: Social Movements, Policy Debates, and Public Health (4)** (Same as Community Health Sciences CM470 and Urban Planning M470.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. S/U or letter grading.

**495. Teacher Preparation in Environmental Health Sciences (2)** Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 8)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research. (2 to 10)** Tutorial, four hours. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research. (2 to 10)** Tutorial, four hours. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

# Epidemiology

## Epidemiology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Principles of Epidemiology (4)** Lecture, four hours; discussion, two hours. Preparation: one full biological sciences course. Limited to nonmajors. Not open for credit to students with credit for course 120. Introductory course to provide qualified undergraduate students with broad and comprehensive overview of concepts of epidemiology including evaluating public health problems in terms of magnitude, person, time and place; critiquing epidemiologic studies; identifying and accessing key sources of data for epidemiologic assessment; using epidemiologic methods and calculating basic epidemiology measures for operational purposes; and communicating basic principles of epidemiology such as definitions of populations, sources of bias, causation for morbidity and mortality, risk and protective factors, and basics of study design. Letter grading.

**120. Epidemiology in Public Health (5)** Lecture, four hours; discussion, two hours. Requisite: Public Health 50B. Limited to Public Health majors. Not open for credit to students with credit for course 100. Introduction to main principles of epidemiology, including foundational concepts and terminology, and exploration of key historical developments of field. Survey of major study designs and statistical techniques with emphasis on application of epidemiological concepts in public health. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

### Graduate

**200A. Methods I: Basic Concepts and Study Designs (4)** Lecture, three hours; discussion, one hour. Introduction of basic concepts and methods in epidemiology with emphasis on measuring disease occurrence, study design, and assessing causal relationships. Letter grading.

**200B. Methods II: Prediction and Validity (6)** Lecture, six hours; discussion, four hours. Enforced prerequisites: course 200A and Biostatistics 100A, or Public Health 200A and 200B. Corequisite: Biostatistics 100B. Introduction to basic concepts, principles, and methods of chronic and infectious disease epidemiology. Letter grading.

**200C. Methods III: Analysis (6)** Lecture, four hours; laboratory, two hours. Enforced prerequisites: courses 200A, 200B. Introduction to basic concepts, principles, and methods of epidemiologic data analysis. Letter grading.

**203. Topics in Theoretical Epidemiology (4)** (Formerly numbered 203.) (Same as Health Policy M201.) Lecture, three hours. Emphasis on methods that help to understand how systems operate and how to intervene on them. Explora-

tion of how to characterize human-centered problems that arise, and how to handle complexity as core design and development challenge. Examination of different traditions of studying and modeling (representing) systems, both conceptually and quantitatively, to address questions that arise in public health. Consideration of utility and limitations of these methods for providing insight to stakeholders who are addressing population health problem. S/U or letter grading.

**204. Logic, Causation, and Probability (4)** (Same as Statistics M243.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended prerequisite: course 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading.

**205. Methods for Analyzing Non-Randomized and Quasi-Experimental Studies (4)** Lecture, three hours. Requisites: course 200C or 401, or Biostatistics 200A or 200B or 406, and course M403 or 407A or Biostatistics 203A. Provides students with necessary tools to evaluate effectiveness or impact of public health interventions. Study designs include non-randomized, quasi-experiments, and natural experiments. Covers both theoretical concepts as well as practical tools that encompass methods borrowed from related fields including social epidemiology, health policy, econometrics, and evaluation research. These methods include instrumental variable, difference-in-difference, synthetic control, regression discontinuity, and propensity score matching. S/U or letter grading.

**206. Systems Science Modeling and Simulation in Epidemiology (4)** Lecture, three hours. Requisites: course 200C or 401, or Biostatistics 200A or 200B or 406, and course M403 or 407A or Biostatistics 203A. Theoretical and practical introduction to modeling and simulation methods for conducting comparative, cost-effectiveness, and forecasting research. These methods include population-level (e.g., Markov state-transition models and system dynamics) and individual-level (e.g., microsimulation and agent-based modeling) simulations. These methods are employed in field sometimes referred to as systems epidemiology or computational epidemiology. Multidisciplinary fields that use tools and techniques from computer sciences, econometrics, operations research, engineering, and epidemiology to better understand disease mechanisms or evaluate intervention effectiveness. S/U or letter grading.

**207. Reproducibility in Epidemiologic Research (4)** Lecture, three hours. Requisites: courses 200A, 401 (or Biostatistics 100B or 200A and 200B), M403. Introduction to concept of reproducibility in epidemiologic research. Students are exposed to tools for adopting practices to enhance reproducibility in their own research. Letter grading.

**211. Statistical Methods for Epidemiology (4)** (Same as Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Enforced prerequisites: courses 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in courses 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

**212. Statistical Modeling in Epidemiology (4)** Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: course M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

**215. Systematic Review and Meta-Analysis (2)** Lecture, two hours. Requisites: course 100 or 200A, and Biostatistics 100A, or Public Health 200A and 200B. Offers theoretical and practical understanding of systematic reviews and meta-analysis of clinical trials and observational studies. Students learn how to conduct systematic literature search, assess quality of selected studies, identify sources of heterogeneity, conduct meta-analysis, and understand standards of reporting on meta-analyses. Offers practical training in meta-analyses and meta-regression using STATA software. Letter grading.

**216. Applied Sampling (4)** (Same as Statistics CM248.) Lecture, three hours; discussion, one hour. Designed for upper-division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. S/U or letter grading.

**217. Social Networks and Public Health (4)** Lecture, four hours. Requisite: course 100 or 200A, or Public Health 200A and 200B. Principles of social network research, social network analysis, and social network intervention, espe-



cially in relation to public health and health behavior. Coding examples are provided in R (mainly R igraph and ggplot2 packages). Discussion of landmark social network papers relevant to public health. S/U or letter grading.

**218. Questionnaire Design and Administration (4)** (Same as Community Health Sciences M218.) Lecture, four hours. Requisites: courses 200B and 200C, or Community Health Sciences 211A and 211B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

**219. Strategies for Increasing Sensitivity and Validity of Epidemiologic Studies (2)** Lecture, two hours. Requisite: course 100 or Public Health 200A. Discussion of strategies for increasing sensitivity and validity of epidemiologic studies. Covers issues that led to methodologic articles authored by instructor; nature of articles themselves; subsequent studies that have used suggested approaches; and any modification of methods that have been proposed. Students are expected to have basic training on epidemiological study designs and methods. S/U or letter grading.

**220. Principles of Infectious Disease Epidemiology (4)** Lecture, three hours. Requisite: course 100 or 200A or Public Health 200A. Ascertainment of infection, transmission, and epidemiological parameters rather than clinical and pathological aspects. Specific diseases discussed in depth to illustrate epidemiologic principles. S/U or letter grading.

**221. Emerging Infectious Diseases (4)** Lecture, three hours. Requisite: course 220 or consent of instructor. Emerging infectious diseases (EIDs) are infections that have recently appeared within population or those whose incidence or geographic range is rapidly increasing or threatens to increase in future. Overview of important emerging and re-emerging infectious diseases globally. Addresses factors associated with disease emergence/re-emergence, research methods, preparedness, disease surveillance, outbreak investigation, and response to EIDs with global perspective. Letter grading.

**226. Global Health Measures for Biological Emergencies (4)** (Same as Ecology and Evolutionary Biology M226.) Lecture, four hours. Requisite: course 220. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading.

**227. HIV/AIDS: Methods of Prevention, Treatment, and Cure (4)** Lecture, three hours. Requisite: course 100 or 200A or Public Health 200A. Presentation of epidemiologic, biologic, psychological, and clinical characteristics of AIDS and HIV-1 infection. Discussion of policy implications and intervention strategies. S/U or letter grading.

**228. Biology of HIV and SARS-CoV-2 (4)** Lecture, three hours. Preparation: two biology courses. Requisites: course 100 and Biostatistics 100A, or Public Health 200A and 200B. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in laboratory. Letter grading.

**230. Epidemiology of Sexually Transmitted Diseases (4)** Lecture, three hours. Requisite: course 100 or 200A or Public Health 200A. Sexually transmitted diseases; medical/biological aspects, epidemiology and control in developed and developing countries. S/U or letter grading.

**231. Principles of Control of Infectious Diseases (4)** Lecture, three hours. Comprehensive study of tools for control of infectious diseases and application of these tools in public health programs to achieve epidemiologic impact on disease reduction, elimination, or eradication. S/U or letter grading.

**232. Methods in Research of Marginalized and Hidden Populations (2)** Lecture, two hours. Introduction to range of different methodologies used to collect data and conduct analysis on reproductive epidemiology topics, including methods that produce quantitative data and methods that produce qualitative data, with emphasis on use of methods appropriate for challenging and sensitive research topics such as sexual behavior, abortion use, and sexual abuse. Letter grading.

**240. Cardiovascular Epidemiology (2)** Lecture, two hours. Topics include definition, pathogenesis, descriptive epidemiology, magnitude of risk factors, strategies for prevention, lipoprotein metabolism, and epidemiology of diabetes, hypertension, and chronic lung disease. Letter grading.

**241. Epidemiology of Obesity and Diabetes (4)** Lecture, three hours. Requisite: course 100 or 200A or Public Health 200A. Overview of epidemiology of obesity and diabetes. Students are exposed to most important research in this area. Focus includes global and regional epidemic of obesity and diabetes, risk factors and complications, classifications and assessments, prevention and management, as well as methodological issues related to study design and measurements for conducting obesity and diabetes research in large populations. Encourages students' creative thinking and improves their skills for scientific writing and oral communications through individual and team assignments. S/U or letter grading.

**242. Cancer Epidemiology (4)** Lecture, four hours. Requisite: course 100 or 200A, or Public Health 200A and 200B. Introduction to basic concepts of cancer and molecular and genetic epidemiology. Review of current epidemiologic research in cancer in recent medical and epidemiological literature. Research proposal on cancer-related topic required. S/U or letter grading.

**243. Molecular Epidemiology of Cancer (4)** Lecture, four hours. Requisite: course 242 or 295. Introduction to basic concepts and methodology of molecular epidemiology of cancer and review of current molecular epidemiologic research of cancer in recent medical and epidemiological literature. S/U or letter grading.

**244. Research Methods in Cancer Epidemiology (2)** Lecture, two hours. Requisites: course 100 or 200A, and Biostatistics 100A, or Public Health 200A and 200B. Biologic, quantitative, philosophical, and administrative considerations in epidemiologic cancer research. Hypothesis specification and choice of study design. Uses of descriptive epidemiology, cohort studies, case control studies. Clustering, screening, and cancer control. Means of identifying subjects and controls. Design of instruments. Sources of bias and confounding. S/U or letter grading.

**245. Lifestyle Intervention for Noncommunicable Chronic Diseases (4)** Lecture, three hours. Requisites: course 100, Public Health 200A, 200B. Designed to teach students how to apply principles of trial design and data analysis to lifestyle interventions for purposes of preventing onset and progression of diseases. Focus on noncommunicable chronic diseases (i.e., obesity, diabetes, hypertension, coronary heart disease, or cancer), but concepts and methods can be applied to acute and infectious diseases as well. S/U or letter grading.

**246. Epidemiology of Aging (2)** Lecture, two hours. Epidemiologic methods of estimating present and future burdens of aging: morbidity, disability, and dependency. Epidemiology of major disabling conditions affecting elderly. Evaluation of possible intervention strategies. Methodologic issues in geriatric epidemiology. S/U or letter grading.

**247. Lifecourse Epidemiology (4)** Lecture, three hours. Requisites: course 100 or 200A, and Biostatistics 100A, or Public Health 200A; and Biostatistics 100B, or equivalent, or consent of instructor. Introduction to concepts and methods for studying lifecourse determinants of health and disease. Consideration of how exposures at one stage of human lifespan influence health outcomes at multiple life stages. Analytical approaches to research on lifecourse determinants of health. S/U or letter grading.

**249. Genetic Epidemiology I (4)** Lecture, two hours. Preparation: at least one course in epidemiology, biostatistics, and genetics. Basic concepts in emerging field of genetic epidemiology, with principal focus on genetic study of complex diseases, determining genetic contributions to disease, identifying genes, and characterizing their main effects and interactions with environmental factors. S/U or letter grading.

**254. Nutritional Epidemiology I (4)** (Same as Community Health Sciences M251.) Lecture, two hours; discussion/laboratory exercise, one hour. Preparation: introductory biostatistics and epidemiology courses. Review of all aspects of contemporary nutrition sciences that require application of epidemiologic principles and methods, ranging from food-borne outbreak investigation to evidence-based regulatory assessment of health claims for foods. Experience in actual world of collecting, analyzing, and interpreting data related to nutrition and health or disease outcomes. S/U or letter grading.

**260. Environmental Epidemiology. (2, 4)** Lecture, three hours. Requisite: course 100 or 200A, or Public Health 200A and 200B. Epidemiologic methods applied to evaluation of human health consequences of environmental hazards. Topics include air pollution, pesticides, drinking water contaminants, use of GIS. Review of recently completed environmental studies published in peer-reviewed literature. S/U or letter grading.

**261. Occupational Epidemiology (4)** (Same as Environmental Health Sciences M260.) Lecture, three hours. Requisites for majors: courses 200A, 200B, 200C; for nonmajors: course 100. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading.

**265. Epidemiologic Methods in Occupational and Environmental Health (4)** Lecture, three hours. Introduction to epidemiologic methods applied to evaluation of human health consequences of occupational and environmental hazards, including study design, exposure assessment, and statistical techniques commonly encountered in research focused on assessing adverse health effects resulting from occupational and environmental exposures. Topics include clusters, meta-analysis, risk assessment, and policy development. Illustrated by case studies, with focus on techniques to critically evaluate and interpret current literature. Letter grading.

**266. Global Health and Tropical Medicine (4)** Lecture, four hours. Introduction to tropical diseases and global health. How humanitarian health issues, maternal-child health, research in tropics, World Health Organizations, and political/medical constraints all are related with respect to health on worldwide scale. Letter grading.

**267. Methodologic Issues in Reproductive Epidemiology (2)** Seminar, two hours. General discussion of methodologic issues important to epidemiologic studies of reproductive outcomes, including fertility, low birth weight, prematurity, birth defects, pregnancy loss, and perinatal mortality. Approaches to study design and exposure assessment and identification of potential sources of bias illustrated through review of recent studies published in literature and with particular focus on occupational and environmental exposures and birth cohorts. S/U or letter grading.

**268. Introduction to Pharmacoepidemiology (2)** Lecture, two hours. Requisite: course 100 or 200A, or Public Health 200A and 200B. Pharmacoepidemiology is application of epidemiologic knowledge, reasoning, and methods to study of effects and uses of drugs. Survey of contemporary roles of pharmacoepidemiology in drug development and public health, with historical background of its evolution and projections of future prospects. S/U or letter grading.

**269. Substance Use Epidemiology (4)** Lecture, three hours. Requisites: course 200A, and Biostatistics 100A or 100B or equivalent. Introduction to epidemiology of substance use and substance use disorders within public health paradigm. Review of drug policy in U.S., description of occurrence of substance use and related problems, examination of intersection of substance use and mental health disorders, and examination of role of epidemiology in informing and evaluating interventions targeting substance use disorders, including health services and pharmacologic and non-pharmacologic treatments. S/U or letter grading.

**270. Behavioral Epidemiology (4)** Lecture, three hours. Requisite: course 100 or 200A or Public Health 200A. Introduction to range of different methodologies used to collect data and conduct analyses on behaviors studied in epidemiology research. How to collect, analyze, and interpret data on behaviors that can be associated with disease outcomes, including methods to collect survey data (i.e., design of questionnaires, interviewing techniques, use of technology to collect data) and methods to collect and analyze qualitative data (e.g., ethnographic interviews, focus groups, systematic observations). Overview information on epidemiology of key behavioral factors affecting human health, including sexual risk behaviors, substance use, physical activity, and health-care utilization. S/U or letter grading.

**271. Psychiatric Epidemiology (4)** Lecture, three hours. Requisites: Biostatistics 100B, Public Health 200A, 200B. Psychiatry epidemiology examines occurrence and distribution of mental health disorders and probable causes and factors that influence their manifestation, trajectory, and outcome. Provides students with knowledge and skills necessary to conceptualize mental health related research questions, properly assess mental health symptoms and diagnostic classifications in their research (e.g., prevalence, incidence, and outcome), and analyze data to advance field of psychiatric epidemiology and better understand how to establish mental health and substance use treatment guidelines. With respect to measurement, emphasis is given to issues of reliability and validity in studying such disorders—while considering factors such as gender, sexuality, race/ethnicity, age, poverty, education, culture, social support, social capital, etc. S/U or letter grading.

**272. Social Epidemiology (4)** (Same as Community Health Sciences M272.) Lecture, two hours; discussion, one hour. Requisite: course 100 or Public Health 200A and 200B. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading.

**273. Responsible Conduct of Research in Global Health (2)** (Same as Public Health M273.) Lecture, two hours. Requisite: Community Health Sciences 200. Introduction to fundamental principles of public health ethics, current ethical procedures, guidelines, and requirements, and ethical issues facing public health professionals working in developing countries. History of public health issues, unique ethical issues of research in developing countries, analysis of ethical implications of informed consent, responsibility to study community, mechanisms of study approval, role of funders, and role and responsibilities of review boards. S/U or letter grading.

**274. Advanced Epidemiologic Methods for Global Health (2)** Lecture, two hours. Requisites: courses 200A, 200B, and Biostatistics 100B, or Public Health 200A and 200B. Study provides global health researchers and epidemiologists with methods that enable access to and utilization of existing data; new methods for collection of new data; and advanced methods for statistical

analyses focusing on existing sources of data, surveys, data sharing, and advanced statistical and epidemiologic methods in global health. S/U or letter grading.

**291. Seminar: Special Topics in Epidemiology (2)** Seminar, two hours. Requisite: course 100 or 200A, or Public Health 200A and 200B. Review of current epidemiologic research contained in recent medical literature. May be repeated for credit. S/U or letter grading.

**292. Advanced Seminar: Epidemiology (2)** Seminar, two hours. Requisites: courses 200A, 200B, 200C. Current research in epidemiology. May be repeated for credit. S/U grading.

**293. International HIV/AIDS Seminar (2)** Seminar, two hours. Ongoing discussion of worldwide pandemic of HIV/AIDS, with emphasis on problems of surveillance, reporting, and intervention. Discussion of recent literature. Presentations by fellows from other countries. S/U grading.

**295. Seminar: Epidemiology—Cancer (2)** Seminar, two hours. Requisite: course 100 or 200A, or Public Health 200A and 200B. Introduction of basic concepts of cancer epidemiology and review of current epidemiological research in cancer in recent medical and epidemiological literature. May be repeated for credit. S/U or letter grading.

**400. Field Studies in Epidemiology (4)** Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward MS minimum course requirement; 4 units may be applied toward 44-unit minimum total required for MPH degree. Letter grading.

**401. Applied Epidemiologic Analysis (4)** Lecture, three hours. Requisites: course M403, Biostatistics 100B, Public Health 200A, 200B. Combines lectures, discussions, and laboratory assignments to offer conceptual understanding of analytic methods in epidemiology. Students develop basic proficiency in methods by conducting statistical analysis using epidemiologic data, with expectation that students pursue courses 200A and 200B in second year and develop expertise in methods they will use for their own research. S/U or letter grading.

**403. Computer Management and Analysis of Health Data Using SAS (4)** (Same as Biostatistics M403B.) Lecture, two hours; laboratory, two hours. Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading.

**404. Advanced SAS Techniques for Management and Analysis of Epidemiologic Data (2)** Lecture, three hours. Requisite: course M403 or 410. Hands-on experience with SAS 9.2/9.3, with focus on using SAS data and PROC steps efficiently to manage, clean, analyze, and tabulate epidemiologic data from data collection systems. Common issues and solutions in data management, including lack of documentation, data definitions, unique subject identifiers, and nonstandard data formats. S/U or letter grading.

**407. Epidemiologic Research Using R (4)** (Formerly numbered 407A.) Lecture, three hours. Requisite: course 100 or 200A, or Public Health 200A and 200B, or consent of instructor. Designed to broadly offer R coding experience, with emphasis on data management, visualization, and analysis. Topics include data manipulation, causal inference, generation of publication-suitable figures and tables, and construction of functions. S/U or letter grading.

**407B. Applied Epidemiologic Research Using R (2)** Lecture, two hours. Requisite: course 407A. Designed to broadly offer R coding experience, with emphasis on data management, data description using tables and figures, and data analysis. Introduction of various concepts with data to facility interactive learning each week through guided R programming tutorials. Weekly R data analysis, in which students present their research and data analysis progress using real data. Each student performs secondary data analysis and prepares abstract, brief introduction, methods, and results part of submittable brief communication paper. S/U or letter grading.

**410. Introduction to Python for Epidemiologists (2)** Lecture, two hours. Requisites: Biostatistics 100A, Public Health 200A. Introduction to use of Python programming language for epidemiologic analyses of big data. Topics covered include supervised and unsupervised learning methods, feature engineering, and model evaluation approaches using both quantitative and text-based health data. S/U or letter grading.

**412. Public Health Surveillance (2)** Lecture, two hours. Requisites: course 100 or 200A, and Biostatistics 100A, or Public Health 200A and 200B. Overview of public health surveillance methodology, including (1) design, implementation, and evaluation of surveillance systems, (2) analysis and interpretation of surveillance data, and (3) application of surveillance methods to specific health-related outcomes. S/U or letter grading.

**413. Methods of Scientific Communication (2)** Lecture, two hours. Requisite: course 100 or 200A. Principles of scientific writing and communication. Approaches to developing effective written, oral, and visual presentations of epidemiologic research findings. Communication issues arising in conduct of research, including informed consent process. S/U or letter grading.

**415. Practicing Epidemiology in Government Health Agencies (2)** Lecture, two hours. Requisite: course 200B. Introduction to practice-based concepts for conducting epidemiology in a local or state health agency. Topics include funding issues, data sources, study design concerns, bureaucratic challenges, use of epidemiology for evidence-based decision-making, and communication of findings to lay audiences. S/U or letter grading.

**420. Global Health Epidemiology: Study Design and Implementation in Low Resource Settings (4)** Lecture, three hours. Requisite: course 100 or 200A or Public Health 200A. Introduction to practical concepts and issues in conducting epidemiologic field research in low resource settings, including formulating research questions, study site selection, ethical considerations, and logistics of data and specimen collection. S/U or letter grading.

**495. Teacher Preparation in Epidemiology (2)** Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research (2 to 8)** Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research (2 to 12)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

# Ethnomusicology

## Ethnomusicology Courses

### Lower Division

**5. Music Around World (5)** Lecture, four hours; discussion, one hour; outside study, 10 hours. Overview of world's musical traditions by selecting one or two case studies from each of nine musical world regions: Pacific, East Asia, Southeast Asia, South Asia, Middle East, Africa, Europe, Latin America, and U.S. and Canada. P/NP or letter grading.

**6A. Introduction to Global Musicianship (2)** (Same as Music M6A and Musicology M6A.) Laboratory, four hours. Course M6A is enforced requisite to M6B, which is enforced requisite to M6C. Students must receive grade of C- or better to proceed to next course in sequence. Introduction to global musicianship through in-depth exploration of basic musical elements through performance, aural skills, and active listening. Engages with melodic information represented in solfège, harmonic information in Nashville number system, and rhythmic information in both Western notation and digital audio workstation grid visualization. Letter grading.

**6B. Introduction to Musicianship (2)** (Same as Music M6B and Musicology M6B.) Laboratory, four hours. Preparation: placement examination. Enforced requisite: course M6A with grade of C- or better. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

**6C. Introduction to Musicianship (2)** (Same as Music M6C and Musicology M6C.) Laboratory, four hours. Preparation: placement examination. Enforced requisite: course M6B with grade of C- or better. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

**7. Introduction to Music and Culture of Iran (4)** Lecture, four hours. Examination of Persian music in historical, social, linguistic, and cultural contexts. Discussion of musical forms, rules of improvisation, structure of modal system and rhythmic cycles, religious music, and traditional and modern pop music. Consideration of interrelationships between musical genres and other art forms (dance, theater, visual arts, and literature) and analysis of how these types of music have intersected with issues of race, class, gender, religion, ritual, politics, social movements, and cultural identity. Includes detailed introduction to musical terms and concepts throughout. Letter grading.

**8. Current Practices in Iranian Music-Making (4)** Seminar, three hours. Introduction to contemporary practices of Iranian music-making, with particular focus on social, cultural, religious, and political issues since 1979 Iranian Revolution. Consideration of interrelationships between musical genres. Analysis of how these types of music have intersected with issues of language, race, class, gender, ritual, politics, social movements, and cultural identity. Survey of evolution of Iranian musical practices during four decades of Iranian Revolution. P/NP or letter grading.

**10A. Music Theory and Musicianship I (5)** Lecture, four hours; discussion, one hour. Enforced requisite: course M6A with grade of C or better. Course 10A is enforced requisite to course 10B. Students must receive grade of C or better to proceed to next course in sequence. Basic technical terms of Western music and various non-Western musical cultures around the world; reading and writing Western music notation and some non-Western notational traditions; rhythm and intervals as they manifest themselves in distinct traditions; musical symbols, such as dynamics and articulation marks; vocabulary of ornamentations in Western and non-Western traditions; pitch organization systems of the world. Letter grading.

**10B. Music Theory and Musicianship II (5)** Lecture, four hours; discussion, one hour. Enforced requisite: course 10A with grade of C or better. Introductory level harmony as practiced in Western classical music; Western music polyphony as a compositional technique and style; introduction to musical textures in Western and non-Western musical traditions; harmonic and formal analysis in Western and non-Western musical traditions; knowledge of various compositional techniques. Letter grading.

**15. American Life in Music (4)** Lecture, three hours. Impact of ethnicity, race, gender, and other social processes on American music in late 20th century; use of and creativity in music to respond to and shape contemporary social processes. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Musical Cultures of World: Europe and Americas (5)** Lecture, four hours; discussion, one hour; outside study, 10 hours. Enforced requisites: courses 10A and 10B, or Music 20C with grades of C or better. Traditional and popular musics from many different countries, with introduction to basic ethnomusicological concepts and development of listening and analytical skills. Letter grading.

**20B. Musical Cultures of World: Africa and Near East (5)** Lecture, four hours; discussion, one hour; outside study, 10 hours. Enforced requisites: courses 10A and 10B, or Music 20C with grades of C or better. Traditional and popular musics from many different countries, with introduction to basic ethnomusicological concepts and development of listening and analytical skills. Letter grading.

**20C. Musical Cultures of World: Asia (5)** Lecture, four hours; discussion, one hour; outside study, 10 hours. Enforced requisites: courses 10A and 10B, or Music 20C with grades of C or better. Traditional and popular musics from many different countries, with introduction to basic ethnomusicological concepts and development of listening and analytical skills. Letter grading.

**21. Global Popular Musics I: Emergence of Recording Industries and Major Styles (4)** Lecture, four hours. Exploration of what pop music is, how it became global, and what globalization and glocalization are. Pop music here is defined not just as music which has a wide audience base (which is popular), but music whose existence is result of technologies of recording, mass production, and mass distribution. Examination of rise of music industries and mass-produced music in countries across world in early 20th century, exploring issues of technology, capitalism, industry, trade, and migrations associated with colonialism. Study of how pop music from U.S. and numerous countries across world was global, transregional, and globalized before era of globalization in 1990s, as recording gave music new potential to travel. P/NP or letter grading.

**22. Global Popular Musics II: From Cassettes to Digital and Online Media (4)** Lecture, four hours. Exploration of multiplicitous world of global pop beyond major pop genres and their industries established in early-to-mid 20th century. Examination of dramatic decentralization of media that took place with advent of cassette technology and explosion of new forms of popular music that are listened to on recordings as much as in live settings. Examination also of how major pop genres are appropriated and localized in contexts both intended and unintended by their producers at new intensities of speed and scale and further and further distance from urban, industrial, and political centers of power. Exploration of how this loosening of central control releases quagmires of exploitation, piracy, and creativity in world of popular and recorded music, and, later, with rise of Internet and social media. P/NP or letter grading.

**25. Global Pop (5)** (Same as Global Jazz Studies M25.) Lecture, four hours; discussion, one hour. Development of world music or world beat, including its meaning and importance to contemporary culture as well as its history and impact. P/NP or letter grading.

**30. Music and Media (5)** Lecture, four hours; discussion, one hour. Exploration of ways music is mediated to people by industry, technologies, and corporations. Survey of leading theorists of media and exploration of case studies. P/NP or letter grading.

**35. Blues, Society, and American Culture (5)** (Same as Global Jazz Studies M35.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of blues music tradition from its roots in West Africa to its emergence in African American oral culture, with emphasis on philosophical underpinnings and social and political impact of blues and its influence on development of country, jazz, gospel, rhythm and blues, rock, hip-hop music, and other mediums. P/NP or letter grading.

**40. Music and Religion (5)** Lecture, four hours; discussion, one hour. Survey of nature, role, and power of music in religious rituals around world, covering music and ritual of Hinduism, Buddhism, Judaism, Christianity, and Islam, as well as religious traditions of Native Americans and syncretic religious practices in Americas such as African American gospel music, Brazilian Candomblé, Cuban Santería, and Haitian vodoun. Letter grading.

**45. Music of Bollywood and Beyond (5)** Lecture, four hours; discussion, one hour; outside study, 10 hours. History and development of South Asian film scores in their filmic context, especially omnipresent songs that most distinctively characterize this genre. P/NP or letter grading.

**46. India through Music (5)** Lecture, five hours; discussion, one hour; outside study, nine hours. Exploration of major aspects of society, history, and culture in India through music. There is abundance of incredibly rich musical culture in this region. Introduction to as much diversity as possible, spanning villages to cities and global contexts; high- and low-brow musics; those spanning problematic categories of folk, classical, and popular; and those from powerful as well as oppressed and marginalized peoples. Music as lens to look more deeply into social and cultural world and to explore layers of history ranging from Persianate empires, British Empire, nationhood, and contemporary globalization. Highlights lines of power in particular, notably, those of caste, class, gender, colonialism, and nationalism. Minoritized and disenfranchised people and their music are as prominent as dominant styles and provide contextualization and critique. Letter grading.

**46W. India through Music (5)** Lecture, five hours; discussion, one hour; outside study, nine hours. Requisite: English Composition 3. Not open for credit to students with credit for course 46. Exploration of major aspects of society, history, and culture in India through music. There is abundance of incredibly rich musical culture in this region. Introduction to as much diversity as possible, spanning villages to cities and global contexts; high- and low-brow musics; those spanning problematic categories of folk, classical, and popular; and those from powerful as well as oppressed and marginalized peoples. Music as lens to look more deeply into social and cultural world and to explore layers of history ranging from Persianate empires, British Empire, nationhood, and contemporary globalization. Highlights lines of power in particular, notably, those of caste, class, gender, colonialism, and nationalism. Minoritized and disenfranchised people and their music are as prominent as dominant styles and provide contextualization and critique. Satisfies Writing II requirement. Letter grading.

**50A. Jazz in American Culture: Late 19th Century through 1940s (5)** (Same as Global Jazz Studies M50A.) Lecture, four hours; discussion, one hour. Course M50A is not requisite to M50B. Survey of development of jazz in American culture. Discussion of different compositional/performance techniques and approaches that distinguish different sub-styles of jazz from one another, as well as key historical figures that shaped development of jazz from its early years through modern jazz. Important historical social issues (segregation, Depression, World War II, Civil Rights Movement) that intersect with history of U.S. and jazz music. P/NP or letter grading.

**50B. Jazz in American Culture: 1940s to Present (5)** (Same as Global Jazz Studies M50B.) Lecture, four hours; discussion, one hour. Course M50A is not requisite to M50B. Survey of development of jazz in American culture. Discussion of different compositional/performance techniques and approaches that distinguish different sub-styles of jazz from one another, as well as key historical figures that shaped development of jazz from its early years through modern jazz. Important historical social issues (segregation, Depression, World War II, Civil Rights Movement) that intersect with history of U.S. and jazz music. P/NP or letter grading.

**60. J.S. Bach in His World and Ours (5)** Lecture, four hours; discussion, one hour. Examination of life and music of J.S. Bach in historical and cultural context of his era through its musical manifestations in present, including changes in performance styles, scholarly studies, reception, and contemporary fan culture. P/NP or letter grading.

**68A. World Music Specializations: Music of China—Ensemble (2)** Activity, three hours; outside practice, three hours. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68B. World Music Specializations: Music of China—Chinese Opera (1)** Activity, two hours; outside practice, one hour. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68C. World Music Specializations: Music of China—Chinese Folk Dance (1)** Activity, two hours; outside practice, one hour. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68F. World Music Specializations: Music of India—Ensemble (2)** Activity, three hours; outside practice, three hours. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68G. World Music Specializations: Music of India—Tabla (1)** Activity, two hours; outside practice, one hour. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68M. World Music Specializations: Music of Balkans—Ensemble (1)** Activity, two hours; outside practice, one hour. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68N. World Music Specializations: Music of Balkans—Choir (1)** Activity, two hours; outside practice, one hour. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**68O. World Music Specializations: Music of Balkans—Instrumental Music (1)** Activity, two hours; outside practice, one hour. Performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**73. Music and Religion in Popular Culture (5)** (Same as Musicology M73.) Lecture, four hours; discussion, one hour. Survey of popular music in religious traditions since the 1970s. Growth of music in Jewish denominations, including Orthodox, Reform, and Conservative, and Christian contemporary music, from evangelical to cross-over artists performing in mainstream. Credit for both courses M73 and M173 not allowed. P/NP or letter grading.

**80. Jewish American Experience through Music (5)** (Same as Jewish Studies M80 and Musicology M80.) Lecture, four hours; discussion, one hour. In synagogue and on stage, and from LP recordings to YouTube, Jews in America have varied musical experiences. Music of synagogue, celebrations at home, in community, and theater are all interesting developments of Jewish music. New Opportunities in entertainment industry brought new possibilities for Jews in popular music, rock, and film scores. Exploration of various examples of Jews responding and adapting to their American context and becoming American through music. Exploration of different music genres and contexts. Presentations by guest composers and performers. Letter grading.

**83. Basic Principles of Ethnomusicology (4)** Lecture, four hours. Introduction to history of ethnomusicology field, basic fieldwork and analysis methods, and current issues in research. Study highlights the field's interdisciplinary nature—for example, through connections with anthropology, historical musicology, music technology, gender studies, cultural studies, critical race theory, and postcolonial theory—considering implications for research. Discussion of career opportunities for ethnomusicology graduates. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**91A. World Music Performance Organizations: Music and Dance of American Indians (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91B. World Music Performance Organizations: Music of Bali (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91E. World Music Performance Organizations: Music and Dance of Ghana (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91G. World Music Performance Organizations: Music of Japan (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91H. World Music Performance Organizations: Music of Java (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91J. World Music Performance Organizations: Music of Korea (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91K. World Music Performance Organizations: Music of Mexico (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91L. World Music Performance Organizations: Music of Persia (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91N. World Music Performance Organizations: Music of Near East (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**91P. World Music Performance Organizations: African American Music Ensemble (2)** Activity, three hours. Performance of diverse range of vocal repertoire including spirituals, gospel, freedom/Civil Rights songs, and other works by African-diasporic composers, including anthems, hymn arrangements, and various forms of contemporary choral music. Tracing development of this music from 1600s to present, African American choral music is medium performed a cappella or with instrumental accompaniment. May be repeated for credit without limitation. P/NP or letter grading.

**91Z. World Music Performance Organizations: Open Ensemble (2)** Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading.

**92. Private Instruction in Music (2)** Studio, one hour. Limited to Ethnomusicology majors. Private or semiprivate music instruction with distinguished community-based musician, that must be arranged by students and approved by course instructor. May be repeated for credit without limitation. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**C100. Audiovisual Archiving in 21st Century (4)** Seminar, three hours. Designed for Ethnomusicology majors. Examination of history, present state, and future of audiovisual archives, with specific focus on ethics, copyright, contracts, fieldwork, preservation, and access and issues related to technology, space, budgets, and staffing. Concurrently scheduled with course C200. P/NP or letter grading.

**101. Introduction to Ethnomusicology (4)** Lecture, four hours. Introduction to history of field of ethnomusicology, basic fieldwork and analysis methods, and current issues in research. Introduction also of career opportunities for ethnomusicology graduates. Letter grading.

**103. Creating Musical Community (4)** (Same as Global Jazz Studies M103, Music M103, and Musicology M103.) Seminar, four hours; discussion, one hour. Limited to school of music majors. Faculty and students make music together in different modes. Students learn certain repertoire, refine it, and bring it to concert performance. Students critically engage musical literacies and notion of social contract that forms basis of musical notation. Drawing from American music folk game traditions, highlights complex history of this country and way in which entire body is used as resource when instruments are unavailable. Letter grading.

**105. Music Business (4)** Lecture, four hours; outside study, eight hours. Designed for junior/senior Ethnomusicology majors in public ethnomusicology emphasis. How music industry functions and how products are created, marketed, and consumed. Basic information on production of recordings and legal issues faced by musicians, students, and scholars who use music in their work. P/NP or letter grading.

**106A. Traditional North American Indian Music (4)** Lecture, three hours; discussion, one hour. Native North American traditional music and its role in tribal societies. California, Southwest, Pacific Northwest, Northern and Southern Plains, Great Lakes/Eastern Woodlands, and Southeastern culture areas included. P/NP or letter grading.

**106B. Contemporary North American Indian Music (4)** Lecture, three hours; discussion, one hour. Contemporary Native North American musical expression, including popular styles (folk, country, rock), intertribal Indian musical genres (powwow), syncretic religious music, and traditional/historic Pan-Indian music. P/NP or letter grading.

**108A. Music of Latin America: Mexico, Central America, and Caribbean Isles (5)** (Same as Chicana/o and Central American Studies M108A.) Lecture, four hours; discussion, one hour. Survey of traditional and contemporary musical culture. P/NP or letter grading.

**108B. Music of Latin America: Latin South America (5)** Lecture, four hours; discussion, one hour. Course M108A is not requisite to 108B. Survey of traditional and contemporary musical culture. P/NP or letter grading.

**109. Women in Jazz (4)** (Same as African American Studies M109, Gender Studies M109, and Global Jazz Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

**110A. African American Musical Heritage (5)** (Formerly numbered M12A.) (Same as African American Studies M116A and Global Jazz Studies M110A.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. P/NP or letter grading.

**110B. African American Musical Heritage (5)** (Formerly numbered M12B.) (Same as African American Studies M116B and Global Jazz Studies M110B.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions. P/NP or letter grading.

**111. Ellingtonia (4)** (Same as African American Studies M111 and Global Jazz Studies M111.) Lecture, three hours. Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as Ellingtonia, is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

**113. Music of Brazil (4)** Lecture, three hours. History of ethnic and art music in Brazil, with some reference to Portuguese antecedents. P/NP or letter grading.

**115. Musical Aesthetics in Los Angeles (4)** (Same as Chicana/o and Central American Studies M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on cross-cultural basis of diverse musical contexts within vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and commercial music industry. P/NP or letter grading.

**116. Chicano/Latino Music in U.S. (5)** (Same as Chicana/o and Central American Studies M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of U.S. P/NP or letter grading.

**117. American Popular Music (4)** Lecture, four hours; discussion, one hour. Survey of history and characteristics of American popular music and its relationship to American culture, with emphasis on 20th-century popular music and its major composers, including comparison between traditional pre-1950 popular music and trends in post-1950 popular music. P/NP or letter grading.

**119. Cultural History of Rap (5)** (Same as African American Studies M107 and Global Jazz Studies M119.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

**CM120. Bibliography and Research Methods in Rap Music/Hip-Hop Studies (4)** (Formerly numbered C120.) (Same as African American Studies CM110.) Seminar, three hours. Requisite: course M119. Designed for juniors/seniors conducting research on hip-hop in preparation for capstone projects such as honors or senior thesis. In-depth examination of intellectual history of rap music/hip-hop studies scholarship. Examination of readings related to intellectual history of rap music scholarship and allied traditions (including breakdance and graffiti). Exploration of broad range of research methods and archival/library centers specific to hip-hop studies. Concurrently scheduled with course CM220. Letter grading.

**C121. Tibetan Pop Music: Tibet, Exile, China, and World (4)** Lecture, four hours. Pop music is key part of contemporary Tibet, emerging in 1980s in Tibet and exile, and even earlier if mass-disseminated socialist songs of Tibet as compulsory, state-produced popular music is considered. Exploration of multifaceted world of pop music in and of Tibet and Tibet within China of Mao Zedong and socialism, and that of market socialists from Deng Xiaoping to Xi Jinping. Exploration of ways in which Tibetan pop music is voice for Tibetans in Tibet, numerically small minority in China, and in small exile population. Focus on Tibetan pop music exposes students to plethora of issues relevant to musics of small, minority, and stateless people, and of myriad political dimensions of pop music—turbulent, crude, subtle, social, and economic. Concurrently scheduled with course C221. P/NP or letter grading.

**122. Global Dynamics of K-Pop (4)** Lecture, four hours. Focused study on K-pop—South Korea's most significant cultural export. Close attention is paid to global influences that have shaped Korean popular music in earlier decades and in turn, unprecedented global reach of K-pop in recent history. Study is divided into three units: contextualizing K-pop, transnational flows in K-pop, and critical takes on K-pop. Each unit features distinctive case studies, and

lectures draw out some of broader linkages between units as they relate to modern Korean history, Cold War geopolitical formations and legacies, modern South Korean state and economy, and spread of Korean popular culture. Study draws on wide array of scholarly articles, journalistic pieces, music videos, webinars, and online resources while foregrounding larger issues that emerge through cultural analysis. P/NP or letter grading.

**123. Global Hip Hop (4)** (Same as African American Studies M123.) Lecture, four hours. Overview of the emergence and development of rap music throughout the world. Exploration of the development of hip-hop culture in the U.S., and the historical development of the genre in various global locales. Exploration moves through significant regions in hip-hop culture throughout the world, providing histories and genealogies of geographical musical areas. Discussion throughout of more abstract concepts pertinent to rap music such as the emergence of a global hip-hop culture, race as it pertains in rap music, post-regionalism, gender and sexuality in rap music, and the relationship between rap and protest. Letter grading.

**128. Exploration in Rhythms (2)** (Same as Global Jazz Studies M128.) Lecture, two hours; outside study, four hours. Preparation: ability to read melodic or rhythmic notation. Investigation and exploration of musical time and rhythm in 20th- and 21st-century classical, jazz, world, and popular music. Concepts explored include meter, pulse, rhythmic cycles, hemiolas, and poly-rhythms. P/NP or Letter grading.

**130. Culture of Jazz Aesthetics (4)** (Same as Anthropology M158 and Global Jazz Studies M130.) Lecture, three hours. Recommended requisite: course 20A or 20B or 20C or Anthropology 3 or 4. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

**131. Development of Latin Jazz (4)** (Same as Global Jazz Studies M131 and Music M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

**133. European Musics: Politics, Identities, Nationalisms (5)** Lecture, four hours; outside study, 12 hours. Limited to Ethnomusicology, Music, Musicology, Music History, and European Studies majors. European folk, popular, and classical music as practice that shapes ideas about national, ethnic, class, and religious identity and as tool of political domination and resistance. Letter grading.

**134. Introduction to Armenian Music (4)** (Same as Armenian M134 and Music M134.) Lecture, three hours. Some amount of formal music study and experience as vocalist or instrumentalist desirable but not essential. Introduction to history, tradition, and scope of music of Armenia. Focus on number of different genres and approaches, and interactions between music and culture, society, and history. P/NP or letter grading.

**135. Indo-Persian Musical Cultures: Mapping Musical Connections (4)** Lecture, four hours. Study of connections between musical cultures of Indian subcontinent, Central Asia, and Iran. Exploration of musical ideas, forms, theories, instruments, styles, lyrics, etc. that make visible cultural continuities across broad Indo-Persianate world. Connected histories developed in these vast areas are not just through official language and religion of courts—Persian and Islam—but through trade, wandering Sufis, Persian poetry, scholars, and musicians, engendering deep and long-lasting connections. Focus is both historical and contemporary. Readings include articles and book chapters on musical cultures of Central and South Asia. By exploring diversity of commonalities in Indo-Persian musical cultures, understanding of often hidden similarities across different ethnic, cultural, geographical, and political boundaries is enhanced. Study elucidates values, ideas, and goals that relate individuals and groups across different places and cultures. Letter grading.

**136A. Music of Africa (5)** Lecture, four hours; discussion, one hour; outside study, 10 hours. Introduction to music of Africa through general discussion of select topics such as continent and its peoples, function, musician, instruments, musical structure and related arts, and contemporary music. P/NP or letter grading.

**C136B. Music of Africa (4)** Lecture, four hours; outside study, eight hours. Introduction to music of various African cultures and regions. Through readings, lectures, viewing of films, and analysis of music, students gain greater understanding of diverse musical traditions found on African continent and become more cognizant of contributions that people of Africa have made to world music. Concurrently scheduled with course C236B. Letter grading.

**C140. Music of Arab World (4)** Seminar, three hours. Limited to junior/senior Ethnomusicology majors. Investigation of historical and cultural backgrounds, main musical styles, relationship between theory and practice and emphasis on mode and improvisation, and 20th- and 21st-century trends in music of Ar-

abic-speaking Near East. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C240. Letter grading.

**C141. Music of Turkey and Iran (4)** Seminar, three hours. Limited to junior/senior Ethnomusicology majors. Comparative study of music of Iran and other related areas, including Turkey, with particular reference to their historical and cultural background, sources on music theory and aesthetics, instruments, style, technique of improvisation, and contemporary practice. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C241. Letter grading.

**142. Music and Culture in Afghanistan and Central Asia (4)** Lecture, four hours. Survey of music of Afghanistan, Turkmenistan, Tajikistan, Uzbekistan, and Xinjiang, including traditional and popular styles. Examination of modal systems and specific music genres of these regions, and exploration of cultural contexts, communicative functions, forms, styles, instruments, and musical philosophies. Consideration of interrelationships between musical genres and other art forms (dance, theater, visual arts, and literature) and analysis of how these types of music have intersected with issues of race, class, gender, religion, ritual, politics, social movements, and cultural identity. Includes detailed introduction to musical terms and concepts throughout. Letter grading.

**143. Musical Traditions around Iran: Baluchistan, Kurdistan, Azerbaijan, and Iraq (4)** Lecture, four hours. Introduction to selected types of music around Iran with particular attention to Baluchistan, Kurdistan, Azerbaijan, and Iraq. Study of structures and genres of music in urban and rural communities. Examination of how music-making relates to aspects of current Middle Eastern life such as religious observance, gender relations, ethnic and national identity, and process of globalization. Letter grading.

**144. Special Topics in Iranian Music (4)** Seminar, three hours. Requisites: courses 5 or M25, and 8. Exploration of topics on musical cultures and styles in Iran focusing on specific sociopolitical contexts, sexuality and gender studies, politics and resistance, religion, mysticism and spirituality, and role of musical discourses and practices in Iran and in its multiple diasporas (particularly Los Angeles). Topics announced in advance. May be repeated for credit. P/NP or letter grading.

**145. Analyzing Rhythm in Persian Music (4)** Seminar, three hours. Requisites: courses 5 or M25, and 8. Examination of rhythm principles of Iranian music. Through theoretical and applied methods, exploration of experience of musical rhythm in Iran. Students learn various rhythmic functionalities in order to gain deeper understanding and appreciation for Iran's traditional, folklore, religious, and mystical musical styles. Examination of core rhythmic elements in Iranian music both through ethnomusicological literature on and by practicing Persian percussion in class. P/NP or letter grading.

**146. Folk Music of South Asia (4)** Lecture, three hours; laboratory, one hour. Illustrated survey of some regional genres, styles, and musical instruments found in India and Pakistan, with special reference to religious, social, economic, and cultural context of their occurrence. P/NP or letter grading.

**147. Survey of Classical Music in India (4)** Lecture, four hours. Examination of melodic, metric, and formal structures of Indian classical music in context of religious, sociocultural, and historical background of country. P/NP or letter grading.

**148. Global and Local South Asian Popular Music (4)** Lecture, four hours. India, South Asia, and South Asian diasporas are home to vast array of popular musics. Bollywood (or Hindi film music) dates from 1940s to present day and has spread to countries as diverse as Ghana, Greece, Israel, and western world from 1950s. Older history of popular music in India delves into cosmopolitan colonial cultures of jazz, minstrelsy and traveling theatre, and global circulation of gramophone discs. With advent of cassettes, then CDs, VCDs, MP3s, and now online platforms, popular musics have proliferated. These include rustic vernacular styles like Bhojpuri pop; music of downtrodden groups such as Chamar pop or Gaana; Sufi popular music highlighting religious harmony; pop-style Hindu devotional songs; and recently, militant Hindutva pop. Popular musics have also emerged from South Asian diasporas, such as Chutney and Soca from Trinidad, or Bhangra from United Kingdom Punjabis. P/NP or letter grading.

**C150. Music and Politics in East Asia (4)** Lecture, four hours. Limited to Ethnomusicology, Music, Music History, World Arts and Cultures, Chinese, Japanese, Korean, and East Asian Studies majors. Political imperatives have long had direct and often explicit impact on music sound and context in East Asia. Examination of interaction of ideology and musical practice in medieval Korea and in contemporary Korea, Japan, Taiwan, and China. Concurrently scheduled with course C250. Letter grading.

**C155. Intangible Cultural Heritage Worldwide (4)** Lecture, three hours. Designed for Ethnomusicology, Music History, and World Arts and Cultures majors. Through critical reading of publications by scholars, officials, and cul-

ture-bearers involved in intangible cultural heritage policy and practice, examination of history of heritage conservation; concepts of tangible and intangible heritage; pioneering roles of Japan, South Korea, and UNESCO in making intangible cultural heritage focal point of much cultural policy worldwide; tensions among international ideals, nation-state nationalisms, regionalism, ethnicity, and indigeneity in creating intangible cultural heritage policies in different settings; U.S. equivalents to intangible cultural heritage policies and practices in other countries; roles of private individuals, community initiative, and professional organizations in cultural preservation schemes; and related concept of sustainability. Concurrently scheduled with course C255. Letter grading.

**C156A. Music in China (4)** Lecture, four hours. Requisite: course 20C. Limited to Ethnomusicology majors. Survey of traditional, popular, and Western-influenced musics currently widespread in China, including musical analysis of different genres; examination of contexts in which they exist. Investigation of profound effect of Confucian and Communist ideologies on music. Concurrently scheduled with course C256A. Letter grading.

**156B. Music in China (4)** Lecture, three hours; laboratory, two hours. Requisite: course C156A. Introduction to various notational systems. Analysis of representative styles. Letter grading.

**157. History of Chinese Opera (4)** Lecture, four hours. Survey of dramatic elements in Chinese operas, incorporating singing, dance, and acrobatics. Emphasis on traditional and modern Peking opera and its relation to Cantonese and other genres. P/NP or letter grading.

**158. Studies in Chinese Instrumental Music (4)** Lecture, four hours; outside study, eight hours. Survey of Chinese musical instruments and their musical styles, classifications system, specific musical notation, and use in context of Chinese society. P/NP or letter grading.

**C159. Music on China's Periphery (4)** Lecture, four hours; outside study, eight hours. Designed for undergraduate ethnomusicology, music, music history, and world arts and cultures majors. Survey of musics from China's border regions and neighboring countries: technical musical characteristics and important contextual issues related to traditional and modern styles from Mongolia, Uighurs of Xinjiang, Tibet, Tibeto-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C259. P/NP or letter grading.

**160. Survey of Music in Japan (4)** Lecture, three hours. Survey of main genres of Japanese traditional music, including Gagaku, Buddhist chant, Biwa music, Koto music, Shamisen music, and music used in various theatrical forms. P/NP or letter grading.

**161A. Advanced World Music Performance Organizations: Music and Dance of American Indians (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161B. Advanced World Music Performance Organizations: Music of Bali (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161E. Advanced World Music Performance Organizations: Music and Dance of Ghana (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161G. Advanced World Music Performance Organizations: Music of Japan (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161H. Advanced World Music Performance Organizations: Music of Java (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161J. Advanced World Music Performance Organizations: Music of Korea (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161K. Advanced World Music Performance Organizations: Music of Mexico (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161L. Advanced World Music Performance Organizations: Music of Persia (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.



**161M. Advanced World Music Performance Organizations: Music of Thailand (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161N. Advanced World Music Performance Organizations: Music of Near East (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**161P. Advanced World Music Performance Organizations: African American Music Ensemble (2)** Activity, three hours; outside practice, three hours. Performance of diverse range of vocal repertoire including spirituals, gospel, freedom/Civil Rights songs, and other works by African-diasporic composers, including anthems, hymn arrangements, and various forms of contemporary choral music. Tracing development of this music from 1600s to present, African American choral music is medium performed a cappella or with instrumental accompaniment. May be repeated for credit without limitation. Letter grading.

**161Z. Advanced World Music Performance Organizations: Open Ensemble (2)** Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading.

**162. Advanced Private Instruction in Music (2)** Studio, one hour; outside practice, five hours. Preparation: two years of courses 91A through 91Z or 92. Limited to Ethnomusicology majors. Advanced private or semiprivate music instruction with distinguished community-based musician, that must be arranged by students and approved by course instructor. May be repeated for credit without limitation. Letter grading.

**163. Theory, Practice, and Improvisation in Iranian Music (4)** Seminar, three hours. Requisites: courses 5 or M25, and 8. Designed to expose students from wide background of experience, outlooks, and training to many facets of art and craft of improvisation in Iranian music. Examination of how organization of *radif* (collection of melodic figures preserved through oral tradition that provides basis of improvisation), and master and disciple teaching and tutoring, shape improvisational and performance practices in Iranian traditional music. Comparison of *radif* to number of related musical cultures: Arabic *maqam*, Turkish *makam*, and number of *ragas* from North Indian tradition. Includes in part workshop format in which students are encouraged to bring their own musical instruments, or for vocalist to join in, in exploring *radif*. Students read about theoretical issues of *radif*, and learn how to memorize, compose, and improvise important parts of *radif*. P/NP or letter grading.

**164. World Music Composition (4)** Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: courses 20A, 20B, 20C. Limited to Ethnomusicology majors. Examination in composition using variety of Western and non-Western musical systems. Final project required. Letter grading.

**C165. Selected Topics in Composition (4)** Lecture, four hours; outside study, eight hours. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. May be repeated once for credit. Concurrently scheduled with course C270. Letter grading.

**168A. Advanced World Music Specializations: Music of China—Ensemble (2)** Activity, three hours; outside practice, three hours. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168B. Advanced World Music Specializations: Music of China—Zheng (1)** Activity, two hours; outside practice, one hour. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168C. Advanced World Music Specializations: Music of China—Qin (1)** Activity, two hours; outside practice, one hour. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168F. Advanced World Music Specializations: Music of India—Ensemble (2)** Activity, three hours; outside practice, three hours. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168G. Advanced World Music Specializations: Music of India—Tabla (1)** Activity, two hours; outside practice, one hour. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168M. Advanced World Music Specializations: Music of Balkans—Ensemble (1)** Activity, two hours; outside practice, one hour. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168N. Advanced World Music Specializations: Music of Balkans—Choir (1)** Activity, two hours; outside practice, one hour. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**168O. Advanced World Music Specializations: Music of Balkans—Instrumental Music (1)** Activity, two hours; outside practice, one hour. Advanced performance of specializations in traditional vocal music, instrumental music, and dance. May be repeated for credit without limitation. P/NP or letter grading.

**171. Music and Diverse Worlds of Gender and Sexuality (5)** Lecture, four hours; discussion, one hour. Exploration of diverse worlds of gender, sexuality, and music across multiple global locations. Introduction to theoretical approaches to study of gender and sexuality by theorists such as Judith Butler, Kimberlé Crenshaw, Jack Halberstam, bell hooks, and Sherry Ortner. Exploration of gender critically as highly plural, fluid, and intersectional phenomenon of social organization. As embodied arts existing in often liminal and highly-charged performing spaces and intertwined with pleasure, music and dance frequently foreground issues surrounding body, gender, and sexuality. While being spaces for performing of hegemonic gender identities they can reveal contradictions of normative gender identities (albeit not always intentionally or consciously), and they are also central part of many gender and sexual minority subcultures. Study of gender, performing arts, and power as inseparable, and as manifested in multiple forms of intersectionality, notably including race, class, and age. Letter grading.

**173. Selected Topics in Music and Religion in Popular Culture (5)** (Same as Musicology M173.) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course M73 lecture. Exploration of connections of music, religion, and popular culture among American Jews and Christians. Credit for both courses M73 and M173 not allowed. Letter grading.

**174. Aesthetics of Music (5)** Lecture, four hours; discussion, one hour. Designed for nonmajors. Historical survey of musical aesthetic thought and practice. Selected readings and musical examples. P/NP or letter grading.

**175. Sociology of Music (4)** Lecture, four hours. Designed for Ethnomusicology, Music History, and Music majors. Introduction to sociology of music, its principles and basic concepts, and its critical significance for sociomusical inquiry, including study of popular music, ethnomusicology, and cultural politics of music. P/NP or letter grading.

**176. Music and Capitalism in West (4)** (Same as Music Industry M176.) Lecture, four hours. Follows history of western capitalism and how it has shaped music-making and listening to present time. P/NP or letter grading.

**177. Music, Internet, and Social Media (4)** Lecture, four hours. Innovations in media and technology accompany and contribute to fundamental changes in social and economic organization. Such shifts are often spoken of as revolutions, notably, recent digital or Internet revolution. Exploration of impact of Internet-based social media on ways in which people make music, connect through music, and live from music in diverse global contexts. Examination of how social media are social in new ways, and how they offer new potentials (and new limitations and challenges) for music. Examination of rise of Web 2.0; and exploration of how social media affects music in relation to artistic and creative work, affect and experience, livelihoods and remuneration, and music industries. Examination of both utopian and dystopian discourses in connection with music, Internet, and social media; and exploration of potential for marginalized people, as well as for corporate and political control. P/NP or letter grading.

**C178. Aesthetic and Philosophical Foundations in Systematic Musicology (4)** Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of critical approaches to aesthetics in systematic musicology. Exploration of aesthetics and philosophy of music, sociology of music, critical theory, hermeneutics, and music criticism. Concurrently scheduled with course C204. Letter grading.

**181. Anthropology of Music (4)** Lecture, four hours. Designed for Ethnomusicology, Music History, and Anthropology majors. Cross-cultural examination of music in context of social behavior and how musical patterns reflect patterns exhibited in other cultural systems, including economic, political, religious, and social structure. P/NP or letter grading.

**CM182. Music Industry (4)** (Same as Music CM182, Musicology CM186, and Music Industry M182.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, be-

ginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM288. Letter grading.

**183. Study of Ethnomusicology (4)** Lecture, three hours; outside study, nine hours. Requisites: courses M6A, M6B, M6C, 20A, 20B, 20C. Designed for Ethnomusicology majors. Introduction to history of field, basic fieldwork and analysis methods, and current issues in research. Letter grading.

**C184. Public Ethnomusicology (4)** Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology majors. How music industry functions and how products are created, marketed, and consumed. Techniques of pure research, basic and theoretical in nature, contrasted with those of applied research, practical and policy-oriented in approach. Concurrently scheduled with course C286. Letter grading.

**185. Information Literacy and Research Skills (1)** Tutorial, one hour. Limited to Ethnomusicology majors. Designed to assist students with becoming information literate. How to locate, identify, and critically evaluate and use print and electronic information effectively and ethically. P/NP grading.

**186. Senior Recital or Project (2)** Tutorial, one hour. Limited to seniors. Final project for students who, with approval from their faculty advisers, perform one-hour recital or have their compositions performed in one-hour recital. Organization and arrangement of rehearsal schedule with appropriate accompaniment and preparation of program for performance. Grades are assigned in term recital is performed or composition is completed and performed. P/NP grading.

**188. Special Courses in Ethnomusicology (4)** Lecture, four hours; outside study, eight hours. Selected topics in ethnomusicology. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**193. Journal Club Seminars: Ethnomusicology (2)** Seminar, two hours; outside study, four hours. Limited to undergraduate students. Reading and discussion of writings on subjects in ethnomusicology. May be repeated for credit. P/NP grading.

**195A. Community or Corporate Internships in Ethnomusicology. (2 to 4)** Tutorial, six to 12 hours. Limited to juniors/seniors with minimum cumulative 3.0 grade-point average. Internship in supervised setting in community agency or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**195B. Community or Corporate Internships in Public Ethnomusicology. (2 to 4)** Tutorial, six to 12 hours. Limited to seniors in public ethnomusicology emphasis. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide weekly reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**196. World Music Teaching Practicum (4)** Seminar, two hours; fieldwork, three hours; outside study, seven hours. Limited to junior/senior Ethnomusicology majors. Integration of academic work and hands-on training. Participation in theoretical discussions of world music education and application of these theories in elementary and secondary music and social studies classrooms. P/NP or letter grading.

**197E. Individual Studies in Ethnomusicology. (2 to 4)** Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in ethnomusicology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**197S. Individual Studies in Systematic Musicology. (2 to 4)** Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in systematic musicology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Ethnomusicology. (2 to 4)** Tutorial, to be arranged. Limited to junior/senior Ethnomusicology majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

## Graduate

**C200. Audiovisual Archiving in 21st Century (4)** Seminar, three hours. Designed for Ethnomusicology majors. Examination of history, present state, and future of audiovisual archives, with specific focus on ethics, copyright, contracts, fieldwork, preservation, and access and issues related to technology, space, budgets, and staffing. Concurrently scheduled with course C100. S/U or letter grading.

**201. History of Ethnomusicology (4)** Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic literature and schools of thought in field of ethnomusicology from late 19th century to 1980s. Letter grading.

**202. Current Issues in Ethnomusicology (4)** Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Current issues, basic literature, and schools of thought in field of ethnomusicology from 1980s to present. Letter grading.

**C204. Aesthetic and Philosophical Foundations in Systematic Musicology (4)** Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of critical approaches to aesthetics in systematic musicology. Exploration of aesthetics and philosophy of music, sociology of music, critical theory, hermeneutics, and music criticism. Concurrently scheduled with course C178. Letter grading.

**205. Seminar: Information Technology and Research Skills (4)** Seminar, three hours. Limited to graduate ethnomusicology students. Lecture, demonstration, and practice. Basic skills for research on and about music that is essential to student careers as ethnomusicologists, specifically information technology skills, acoustics, and representational tools for nonlinguistic acoustic phenomena. Basic understanding of acoustics, ability to represent sounds in various graphic forms appropriate to them, and ability to locate and organize information sources related to field of ethnomusicology. Letter grading.

**206. Integrating Theory with Ethnography (4)** Seminar, three hours. Designed to show how theory and primary research cannot exist without each other, and how various authors have integrated theoretical writings and ideas with their ethnographic or historical data. Reading of several recent ethnographies, mostly about music and possibly historical studies, in tandem with theoretical writings that inform arguments of these books. Letter grading.

**207. Seminar: North American Indian Music (4)** Seminar, three hours. Requisite: course 106A or 106B. Survey of representative musical styles of Native North American Indians, including problems of transcription, methods of analysis, symbolic implications of song texts. Emphasis on interrelationship between music and cultural context. Influence of Western music in acculturative contexts. S/U or letter grading.

**208. Seminar: Latin American Music (4)** Seminar, three hours. Review of bibliographic, methodological, and philosophical bases of musical research in Latin America, working from both general and specific perspectives. Exploration of research problems and investigations on specific musical cultures and distinct genres of musical expression. S/U or letter grading.

**211. Seminar: African American Music (4)** (Same as African American Studies M211.) Seminar, three hours. Requisites: courses M110A, M110B. Designed for graduate students. In-depth examination of intellectual history of African American music scholarship. Intensive investigation of problems, theories, interdisciplinary methods/schools of research, and bibliography related to study of African American music. Letter grading.

**215A. Ethnomusicological Perspectives and Paradigms I: Late 19th Century to 1980s (4)** Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic literature and schools of thought in field of ethnomusicology and related social science fields. Letter grading.

**215B. Ethnomusicological Perspectives and Paradigms II: 1960s to Present (4)** Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic literature and schools of thought in field of ethnomusicology and related social science fields. Letter grading.

**216A. Ethnomusicological Methods I (4)** Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic research techniques and perspectives on conducting research and writing it up in ethnomusicology. Letter grading.

**216B. Ethnomusicological Methods II (4)** Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Introduction to basic ethnographic fieldwork techniques and practices in ethnomusicology. Letter grading.

**CM220. Bibliography and Research Methods in Rap Music/Hip-Hop Studies (4)** (Formerly numbered C220.) (Same as African American Studies CM210.) Seminar, three hours. Preparation: ongoing work or preparatory research in rap music/hip-hop studies. Designed for graduate students conducting research on hip-hop in preparation for comprehensive examination preparation, and graduate research projects including master's thesis and dissertation. In-depth examination of intellectual history of rap music/hip-hop studies scholarship. Examination of readings related to intellectual history of rap music scholarship and allied traditions (including breakdance and graffiti). Exploration of broad range of research methods and archival/library centers specific to hip-hop studies. Concurrently scheduled with course CM120. Letter grading.

**C221. Tibetan Pop Music: Tibet, Exile, China, and World (4)** Lecture, four hours. Pop music is key part of contemporary Tibet, emerging in 1980s in Tibet and exile, and even earlier if mass-disseminated socialist songs of Tibet as compulsory, state-produced popular music is considered. Exploration of multifaceted world of pop music in and of Tibet and Tibet within China of Mao Zedong and socialism, and that of market socialists from Deng Xiaoping to Xi Jinping. Exploration of ways in which Tibetan pop music is voice for Tibetans in Tibet, numerically small minority in China, and in small exile population. Focus on Tibetan pop music exposes students to plethora of issues relevant to musics of small, minority, and stateless people, and of myriad political dimensions of pop music—turbulent, crude, subtle, social, and economic. Concurrently scheduled with course C121. S/U or letter grading.

**228. Seminar: Balkan Music (4)** Seminar, three hours. Major issues in study of Balkan music, including song text analysis, music instruments, dance music, rituals and customs, minorities, and ideology. S/U or letter grading.

**230. European Musics: Politics, Identities, Nationalisms (4)** Seminar, three hours; outside study, nine hours. Designed for graduate students. European classical, popular, and traditional musics, with particular attention to way in which music mirrors, negotiates, and contests ideas about and practices of national and other forms of identity, ideas developed in other domains of discourse and practice such as philosophy, history, literature, art, and folklore. Examination of way musicians, ordinary people, and politicians have used music to affect political processes involved in contesting and resolving tensions created between and among these identity formations. Historical period coverage primarily from 19th and 20th centuries, with examples from all over European continent. Letter grading.

**233A. European Traditional and Popular Music. (0)** Discussion, one hour. Review of literature on European traditional and popular music, with special attention to modern issues and processes. May be repeated for credit. In Progress grading (credit to be given only on completion of courses 233B and 233C).

**233B. European Traditional and Popular Music. (0)** Discussion, one hour. Review of literature on European traditional and popular music, with special attention to modern issues and processes. May be repeated for credit. In Progress grading (credit to be given only on completion of course 233C).

**233C. European Traditional and Popular Music (4)** Discussion, one hour. Review of literature on European traditional and popular music, with special attention to modern issues and processes. May be repeated for credit. Letter grading.

**C236B. Music of Africa (4)** Lecture, four hours; outside study, eight hours. Introduction to music of various African cultures and regions. Through readings, lectures, viewing of films, and analysis of music, students gain greater understanding of diverse musical traditions found on African continent and become more cognizant of contributions that people of Africa have made to world music. Concurrently scheduled with course C136B. Letter grading.

**237. Seminar: African Music (4)** Seminar, three hours. Requisite: course 136A or C136B. Analysis of literature and schools of thought in African music scholarship from late 19th century to present, including some analysis of musical, historical, social, and cultural aspects of indigenous and contemporary art forms. S/U or letter grading.

**C240. Music of Arab World (4)** Seminar, three hours. Limited to graduate ethnomusicology students. Investigation of historical and cultural backgrounds, main musical styles, relationship between theory and practice and emphasis on mode and improvisation, and 20th- and 21st-century trends in music of Arabic-speaking Near East. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C140. S/U or letter grading.

**C241. Music of Turkey and Iran (4)** Seminar, three hours. Limited to graduate ethnomusicology students. Comparative study of music of Iran and other related areas, including Turkey, with particular reference to their historical and cultural background, sources on music theory and aesthetics, instruments, style, technique of improvisation, and contemporary practice. Concurrent participation in Near East performance ensemble (course 91N or 161N) required. Concurrently scheduled with course C141. S/U or letter grading.

**248. Classical Music of India (4)** Lecture, three hours; outside study, nine hours. Requisite: course 146 or 147. Study of history, theory, and practice of north and south Indian classical music. Emphasis on music history and traditional theory and analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in Indian performance group (course 91F) required. S/U or letter grading.

**C250. Music and Politics in East Asia (4)** Lecture, four hours. Designed for graduate students. Political imperatives have long had direct and often explicit impact on music sound and context in East Asia. Examination of interaction of ideology and musical practice in medieval Korea and in contemporary Korea, Japan, Taiwan, and China. Concurrently scheduled with course C150. Letter grading.

**251. Music of Indonesia (4)** Lecture, three hours; outside study, nine hours. Requisite: course 20C. Emphasis on music and related performing arts of Java, Bali, and other Indonesian islands. Concurrent participation in one Indonesian performance group (course 91B or 91H) required. S/U or letter grading.

**252. Seminar: Music of Mainland Southeast Asia (4)** Seminar, three hours. Requisite: course 20C. Presentation of materials concerning musical performance traditions of Laos, Cambodia, Vietnam, Thailand, and Burma, both in mainland Southeast Asia and in American context, with perspectives from archaeology, history, performance theory, applied anthropology, and ethnomusicology. S/U or letter grading.

**C255. Intangible Cultural Heritage Worldwide (4)** Lecture, three hours. Designed for ethnomusicology, music history, and world arts and cultures graduate students. Through critical reading of publications by scholars, officials, and culture-bearers involved in intangible cultural heritage policy and practice, examination of history of heritage conservation; concepts of tangible and intangible heritage; pioneering roles of Japan, South Korea, and UNESCO in making intangible cultural heritage focal point of much cultural policy worldwide; tensions among international ideals, nation-state nationalisms, regionalism, ethnicity, and indigeneity in creating intangible cultural heritage policies in different settings; U.S. equivalents to intangible cultural heritage policies and practices in other countries; roles of private individuals, community initiative, and professional organizations in cultural preservation schemes; and related concept of sustainability. Concurrently scheduled with course C155. Letter grading.

**C256A. Music in China (4)** Lecture, four hours. Requisite: course 20C. Limited to Ethnomusicology majors. Survey of traditional, popular, and Western-influenced musics currently widespread in China, including musical analysis of different genres; examination of contexts in which they exist. Investigation of profound effect of Confucian and Communist ideologies on music. Concurrently scheduled with course C156A. Letter grading.

**C259. Music on China's Periphery (4)** Lecture, four hours; outside study, eight hours. Designed for graduate Ethnomusicology, Music, Musicology, and World Arts and Cultures majors. Survey of musics from China's border regions and neighboring countries: technical musical characteristics and important contextual issues related to traditional and modern styles from Mongolia, Uighurs of Xinjiang, Tibet, Tibeto-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C159. S/U or letter grading.

**261. Gender and Music in Cross-Cultural Perspective (4)** (Same as Gender Studies M261.) Seminar, three hours. Designed to foster in-depth understanding of gender in study of music as culture. Topics range from ethnography of gender and sexuality, (de)codification of messages of resistance, and gender representation to gendered politics via musical production. S/U or letter grading.

**262. Musical Ethnography (4)** Seminar, three hours; outside study, nine hours. Examination of selected book-length ethnographies, most published in last 10 years, as both literary genre and research procedure. S/U or letter grading.

**263. Perspectives in Popular Music Research (4)** Seminar, three hours. Investigation of theoretical paradigms, issues, and research models of popular music, with emphasis on world music genres, local/global markets, mass mediation, appropriation and aesthetics of style, ethnographic methods, and impact of popular music studies on ethnomusicology. Letter grading.

**264. Urbanism and Music (4)** Seminar, three hours; outside study, nine hours. Theoretical and methodological issues in study of city as cultural entity that affects and is affected by music making. S/U or letter grading.

**265. Religion and Music (4)** Seminar, three hours; outside study, nine hours. Cross-cultural examination of role of musical expression as spiritual medium and as artistic expression in world's religions. S/U or letter grading.

**266. Charles Seeger's Life and Thought (4)** Seminar, three hours; outside study, nine hours. Charles Seeger's (1886 to 1979) major writings and influence on three fields he helped to found (ethnomusicology, systematic musicology, historical musicology), as well as his interest in applied musicology and American composition in 20th century. S/U or letter grading.

**267. Music and Ecstasy (4)** Seminar, three hours; outside study, nine hours. Relationship between music and consciousness in different world cultures and role music plays in ecstatic experiences. Phenomena include trance, spirit possession, shamanism, religious ecstasy, mysticism, and artistic inspiration. S/U or letter grading.

**268. Modernity and Musical Experience (4)** Seminar, three hours; outside study, 10 hours. Limited to graduate students. Examination of possibilities for subject-centered musical ethnography to account for fragmented musical experience in modern world. Consideration of local and world musics in relation to modernity, postmodernity, globality, notions of self and subject, power, and media images. Letter grading.

**C270. Selected Topics in Composition (4)** Lecture, four hours; outside study, eight hours. Limited to graduate students. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. May be repeated once for credit. Concurrently scheduled with course C165. Letter grading.

**271. Seminar: Acoustics of Music (6)** Seminar, three hours. Requisite: course 170. Selected topics in acoustics, including laboratory methodologies and practical applications. Topics include Western and non-Western instruments, tuning systems, psychoacoustics, and methods of spectral analysis. May be repeated once for credit. S/U or letter grading.

**273. Seminar: Psychology of Music (6)** Seminar, three hours. Selected topics in psychology of music, including recent findings in brain research, musical perception, learning, cognition, memory, therapy, affect, meaning, and measurement. May be repeated once for credit. S/U or letter grading.

**275. Seminar: Aesthetics of Music (6)** Seminar, three hours. Specific topics in Western and non-Western aesthetic thought, including value, meaning (semiotics), historical development of theoretical perspectives and critical theory, and interpretation. May be repeated once for credit. S/U or letter grading.

**279. Seminar: Systematic Musicology (4)** Seminar, three hours. Requisite: course 170. Exploration of specific topics in general field of systematic musicology covering disciplines such as anthropology, acoustics, aesthetics, music perception, philosophy, organology, sociology, and experimental approaches. May be repeated for credit. S/U or letter grading.

**280. Teaching World Music and Music Appreciation (4)** Seminar, three hours. Preparation: two ethnomusicology courses or concurrent enrollment in course 20A, 20B, or 20C. Designed for ethnomusicology and musicology graduate students. Practical overview of current pedagogical philosophies and texts used in teaching introductory music survey courses, specifically music appreciation and general world music. Letter grading.

**281A. Seminar: Field and Laboratory Methods in Ethnomusicology (6)** Seminar, three hours; laboratory, two hours. Requisites: courses 201, 202. Field-work concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects. S/U or letter grading.

**281B. Seminar: Field and Laboratory Methods in Ethnomusicology (6)** Seminar, three hours; laboratory, two hours. Requisites: courses 201, 202. Field-work concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects. S/U or letter grading.

**282. Seminar: Analysis (6)** Seminar, three hours. Requisite: course 180. Designed for graduate ethnomusicology students. Intensive discussion of techniques used in ethnomusicological analysis, including transcription and notation, with emphasis on analysis of musical performance and music events. S/U or letter grading.

**283. Seminar: Study of Musical Instruments (Organology) (6)** Seminar, three hours. Requisites: courses 201, 202. Musical instruments studied in terms of their structures, performance contexts, cultural significance, and patterns of change. S/U or letter grading.

**284. Seminar: Anthropology of Music (4)** Seminar, three hours. Requisites: courses 201, 202. Analysis of current anthropological paradigms and issues that have major impact on ethnomusicology. S/U or letter grading.

**285. Seminar: Comparative Music Theory (6)** Seminar, three hours. Comparative study of codified music theories of select cultures—Western and non-Western—considered in themselves and as expressions of their societies. Theory considered as science of music; its place between cultural values and artistic practice in different civilizations. S/U or letter grading.

**C286. Public Ethnomusicology (4)** Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology majors. How music industry functions and how products are created, marketed, and consumed. Techniques of pure research, basic and theoretical in nature, contrasted with those of applied research, practical and policy-oriented in approach. Concurrently scheduled with course C184. Letter grading.

**287. Seminar: Folk Music (4)** Seminar, three hours. S/U or letter grading.

**CM288. Music Industry (4)** (Same as Music CM282 and Musicology CM288.) Lecture, four hours; discussion, one hour; outside study, eight hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM182. Letter grading.

**289. Research Design and Grant Writing in Ethnomusicology (4)** Seminar, three hours; outside study, nine hours. Design of dissertation research proposal, locating and applying for dissertation fieldwork grants, organizing and presenting advanced academic proposals with sophisticated methods and professional writing skills. S/U or letter grading.

**290. Seminar: Ethnomusicology (6)** Seminar, three hours. Requisites: courses 20A, 20B, 20C, C200, 201, 202. May be repeated for credit. S/U or letter grading.

**291. Ethnomusicology Colloquium Series (1)** Research group meeting, one hour. Limited to graduate ethnomusicology students. Introduction to new trends and issues in discipline of ethnomusicology in effort to strengthen and stimulate intellectual community within department. Topics vary from term to term and consist of presentations by guest lecturers, faculty members, and students. May be repeated for credit. S/U grading.

**292A. Seminar: Special Topics in Ethnomusicology (4)** Seminar, four hours. Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program. S/U or letter grading.

**292B. Seminar: Special Topics in Ethnomusicology (4)** Seminar, four hours. Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program. S/U or letter grading.

**292C. Seminar: Special Topics in Ethnomusicology (4)** Seminar, four hours. Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program. S/U or letter grading.

**292D. Seminar: Special Topics in Ethnomusicology (4)** Seminar, four hours. Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program. S/U or letter grading.

**495A. Teaching Apprentice Practicum (2)** Eight weekly two-hour seminar sessions, plus intensive training session during Fall Quarter registration week. Preparation: appointment as teaching apprentice in Ethnomusicology Department. Required of all new teaching apprentices. Special course dealing with

problems and practices of teaching ethnomusicology and systematic musicology at college level. May not be applied toward degree requirements. S/U grading.

**495B. Teaching with Technology (2)** Seminar, three hours; outside study, three hours. Limited to graduate ethnomusicology students. Training in presentation, spreadsheet, web design, and digitization software, and its application in classroom and in preparation of electronic teaching portfolio. S/U grading.

**596. Directed Individual Studies (2 to 6)** Tutorial, to be arranged. Only 4 units may be applied toward MA minimum course requirements. S/U or letter grading.

**597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examinations (2, 4)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**598. Guidance of MA Thesis (4 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**599. Guidance of PhD Dissertation (4 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

# European Languages and Transcultural Studies

## Dutch Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**103A. Elementary Dutch (4)** Lecture, four hours; language laboratory. Course 103A is requisite to 103B. Introduction to standard language of Netherlands and one of three standard languages of Belgium. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.

**103B. Elementary Dutch (4)** Lecture, four hours; language laboratory. Requisite: course 103A. Introduction to standard language of Netherlands and one of three standard languages of Belgium. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.

**103C. Intermediate Dutch (4)** Lecture, four hours; language laboratory. Requisite: course 103B. Grammatical exercises, conversation, reading and analysis of simple texts. P/NP or letter grading.

**104A. Accelerated Dutch (6)** Lecture, four hours; discussion, one hour; laboratory, two hours. Covers material in courses 103A, 103B, 103C in two terms rather than three. Letter grading.

**104B. Accelerated Dutch (6)** Lecture, four hours; discussion, one hour; laboratory, two hours. Covers material in courses 103A, 103B, 103C in two terms rather than three. Letter grading.

**113. Modern Dutch and Flemish Literature in Translation (4)** Lecture, three hours. Readings and analysis of works by selected authors of Netherlands and northern (Flemish) Belgium such as Boon, Claus, Couperus, Hermans, Mulisch, Multatuli, and Reve and selected poets such as Campert, Gezelle, Gorter, Kloos, Lucebert, Nijhoff, Van Ostaijen, and Vroman. Letter grading.

**120. Introduction to Dutch Studies (4)** Lecture, three hours. Brief review of Dutch grammar. Reading and discussion of selections from contemporary Dutch literature, contemporary Dutch literary criticism, and modern Dutch linguistics. Emphasis on developing reading skill and on acquiring familiarity with and appreciation of scope of 20th-century Neerlandistiek. P/NP or letter grading.

**131. Introduction to Modern Dutch Literature (4)** Discussion, three hours. Requisite: course 103B or 120. Selected works of literature of Netherlands and northern (Flemish) Belgium from mid-1850s to present, including novels by such writers as Multatuli, Couperus, Hermans, Mulisch, and Reve and poetry by such groups as symbolist Beweging van Tachtig and post-War Beweging van Vijftig. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities.

ities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**199. Directed Research or Senior Project in Dutch (4)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**596. Directed Individual Study or Research in Dutch (4)** Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for ID number). May be repeated once. S/U grading.

**597. Preparation for PhD Qualifying Examinations (4)** Tutorial, to be arranged with faculty member who directs study (see department for ID number). S/U grading.

# European Languages and Transcultural Studies Courses

## Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Copenhagen and Nordic Model of Sustainability (5)** Lecture, three hours. Introductory exploration of field of urban humanities before backdrop of Nordic model of sustainability through case study of city of Copenhagen. Investigation of how city's human-centered design, planning, and general sustainability are reflected in Scandinavian cultural traditions in architecture, design, film, history, literature, television, urban planning, and beyond. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**C101XP. Between Los Angeles and Europe: New Approaches to Transatlantic European Studies (4)** Lecture, three hours; community-engaged projects, three hours. Examination of rich migration history between Los Angeles and Europe with view to German-speaking world. Overview of transatlantic cultural, literary, and historical studies back to colonial era. Targeted investigation of complex transatlantic relations between Angelenos and German immigrants during 20th century, including World War II. Students apply newly acquired cultural, historical, and political knowledge to current transatlantic conversations. Offers innovative, scholarly, and praxis-oriented approaches to transatlantic European studies through integration of lesson into community-engaged projects. Illumination of limits of monolingual or state-centric configurations of disciplinary knowledge in addition to exemplifying interdisci-

plinary, multilingual, and transnational studies of Europe, in general, and Germany, in particular. Concurrently scheduled with course C201XP. P/NP or letter grading.

**103. Topics in Medical Humanities (4)** Lecture, three hours. Exploration of selected topics in interdisciplinary field of medical humanities, which seeks to examine how arts, humanities, and social sciences can be brought into productive dialog with medical discourse, education, and praxis. Taught in English. May be repeated for credit. P/NP or letter grading.

**112. Medieval Foundations of European Civilization (4)** (Formerly numbered French 112.) Lecture, three hours. Introduction to and tracing of genealogy of some of most important medieval concepts and institutions, such as empire and state, religion, university, architecture and visual arts, identity, class, race, and sexuality, foundational for European civilization. Exploration of birth of modern nations from their medieval foundation. Examination of cultural production: how and why certain values were created and then passed on. P/NP or letter grading.

**125. Interwar Central European Prose (4)** (Same as Central and Eastern European Studies M125.) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative authors of 1920s and 1930s in translation. Special attention to relation between literature and historical and ethnic concerns. P/NP or letter grading.

**CM126. Cold-War Central European Culture (4)** (Same as Central and East European Studies CM126.) Lecture, three hours. Examination of cold-war Central European culture through prism of prose fiction, essays, and film from 1947 to 1989. Analysis of strategies of Polish, Czech, Hungarian, and East German writers as articulation of tensions, contradictions, and compromises informing communist rule in central and eastern Europe, with focus on culture as node of resistance as well as accommodation to communist system. Concurrently scheduled with course CM226. P/NP or letter grading.

**140. European Crime Novel (4)** Lecture, three hours. Focus on Italian crime novel, but in larger context of European crime fiction. Readings include some of most important and interesting contemporary authors of Italian detective fiction—Camilleri, Carlotto, de Giovanni, Pastor—to see what crime fiction can say about nation in age of globalization, and about Italy in European Union. P/NP or letter grading.

**150. European Folk and Fairy Tales (4)** Lecture, three hours. Study of characteristics, history, and scholarship of folktale/fairytale genre in European contexts. Comparison, analysis, and interpretation of tales. Instruction and texts in English. P/NP or letter grading.

**151. Valkyries and Dragonslayers: Völsung/Nibelung Tradition (4)** Lecture, three hours. Study of medieval Norse and German traditions of Völsung and Nibelung families (Eddas, sagas, Nibelungenlied), as well as modern versions in various media (e.g., Wagner's Ring Cycle, Fritz Lang's Nibelungen films), in their historic and cultural contexts. Instruction and texts in English. P/NP or letter grading.

**167. European Identities in Classic Hollywood and Los Angeles, 1924-1950 (4)** (Formerly numbered Scandinavian 167.) Lecture, three hours. Exploration of myriad European identities within classic Hollywood studio system and within city of Los Angeles as site of cultural production. In-depth analyses and historicizing of impact of European émigrés and exiles on American cinema, especially development of film noir as key genre. Discussion of European identities including film artists from France (Maurice Chevalier, René Clair, Jean Renoir), Germany and Austria (Fritz Lang, Ernst Lubitsch, Robert Siodmak, Billy Wilder), Italy (Frank Capra), and Sweden (Ingrid Bergman, Greta Garbo, Warner Oland, Victor Sjöström). Includes compelling urban humanities component. Investigation of history of Los Angeles as growing urban metropolis that emerges as key locus of American and global mass media culture. Examination of how films and secondary scholarship further reveal how inextricably Europeans in Los Angeles—including artistic and intellectual exiles from Hitler's Nazi-occupied Europe in 1930s and 1940s—shaped this key 20th-century art form. P/NP or letter grading.

**187. Capstone Seminar (4)** Seminar, three hours. Required of all European Languages and Transcultural Studies majors. Students engage in analysis, critique, interpretation, historical research, and contextualization with eye to culminating project. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminar (4)** Seminar, three hours. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

## Graduate

**200. Graduate Methodology and Professionalization Seminar (4)** Seminar, three hours. Covers wide array of topics related to methodologies, concepts, and theories of transcultural and transnational literary and cultural studies in European context. Taught in English. S/U or letter grading.

**C201XP. Between Los Angeles and Europe: New Approaches to Transatlantic European Studies (4)** Lecture, three hours; community-engaged projects, three hours. Examination of rich migration history between Los Angeles and Europe with view to German-speaking world. Overview of transatlantic cultural, literary, and historical studies back to colonial era. Targeted investigation of complex transatlantic relations between Angelenos and German immigrants during 20th century, including World War II. Students apply newly acquired cultural, historical, and political knowledge to current transatlantic conversations. Offers innovative, scholarly, and praxis-oriented approaches to transatlantic European studies through integration of lesson into community-engaged projects. Illumination of limits of monolingual or state-centric configurations of disciplinary knowledge in addition to exemplifying interdisciplinary, multilingual, and transnational studies of Europe, in general, and Germany, in particular. Concurrently scheduled with course C101XP. P/NP or letter grading.

**202. Studies in History of Ideas (4)** Seminar, three hours. Exploration of key concept or idea in European thought, examined transhistorically and/or transnationally. Taught in English. May be repeated for credit. S/U or letter grading.

**203. Topics in Medical Humanities (4)** Seminar, three hours. Exploration of selected topic in interdisciplinary field of medical humanities, which seeks to examine how arts, humanities, and social sciences can be brought into productive dialog with medical discourse, education, and praxis. Taught in English. May be repeated for credit. S/U or letter grading.

**204. Studies in Translation: Theory, Method, Practice (4)** Seminar, three hours. Introduction to principles of literary translation and techniques of literary analysis; practice of translation (to and from English); readings and research in translation studies, philology, linguistics, cultural studies, media, and technology. Taught in English. May be repeated for credit. S/U or letter grading.

**205. Major Works and Figures in Transnational Context (4)** Seminar, three hours. Exploration of major European figure or work, where notion of European may be understood broadly. Author, artist, or work selected by instructor and placed in broad transnational and/or transhistorical context. Taught in English. May be repeated for credit. S/U or letter grading.

**206. Topics in Cultural Studies (4)** Seminar, three hours. In-depth exploration of major historical event through its representation in cultural production. Readings include cultural texts, documentary or archival material, essays on politics, and aesthetics, memory, urban space, architecture. Development of techniques in contextualized literary analysis. Taught in English. May be repeated for credit. S/U or letter grading.

**207. Topics in Literary Studies (4)** Seminar, three hours. Conceptual, thematic, or problem-driven approach to questions in literary studies, with emphasis on both establishing and interrogating trends, debates, assumptions. Taught in English. May be repeated for credit. S/U or letter grading.

**208. Topics in Film, Media, and Visual Culture (4)** Seminar, three hours. National or transnational exploration of movements, theories, questions, and problems in film, media, and visual cultures. Taught in English. May be repeated for credit. S/U or letter grading.

**CM226. Cold-War Central European Culture (4)** (Same as Central and East European Studies CM226.) Lecture, three hours. Examination of cold-war Central European culture through prism of prose fiction, essays, and film from 1947 to 1989. Analysis of strategies of Polish, Czech, Hungarian, and East German writers as articulation of tensions, contradictions, and compromises informing communist rule in central and eastern Europe, with focus on culture as node of resistance as well as accommodation to communist system. Concurrently scheduled with course CM126. S/U or letter grading.

**495. Second Language Teaching in Context (4)** Seminar, three hours. Designed for graduate students. Theory and practice of language teaching. S/U grading.

## French Courses

### Lower Division

**1. Elementary French (4)** Lecture, five hours. P/NP or letter grading.

**2. Elementary French (4)** Lecture, five hours. Enforced requisite: course 1 with grade of C– or better. P/NP or letter grading.

**3. Elementary French (4)** Lecture, five hours. Enforced requisite: course 2 with grade of C– or better. P/NP or letter grading.

**4. Intermediate French (4)** Lecture, four hours. Enforced requisite: course 3 with grade of C– or better. P/NP or letter grading.

**5. Intermediate French (4)** Lecture, four hours. Enforced requisite: course 4 with grade of C– or better. P/NP or letter grading.

**6. Intermediate French (4)** Lecture, four hours. Enforced requisite: course 5 with grade of C– or better. P/NP or letter grading.

**8. Intensive First-Year French (12)** Lecture, 15 hours. All-in-French intensive language program equivalent to first year of college French and designed to develop basic language skills. Additional work in language and media laboratory required. Offered in summer only. P/NP or letter grading.

**9. Intensive Second-Year French (8)** Lecture, 10 hours; media laboratory, three hours. Enforced requisite: course 3. Intensive course equivalent to first two terms of intermediate French and designed to improve proficiency in reading, writing, and speaking. Offered in summer only. P/NP or letter grading.

**12. Introduction to Study of French and Francophone Literature (5)** Lecture, two hours; discussion, one hour. Enforced requisite: course 6. Principles of literary analysis as applied to selected texts in poetry, theater, and prose by French and Francophone writers. P/NP or letter grading.

**14. Introduction to French Culture and Civilization in English (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 14W. Study of contemporary French institutions and issues in cultural, political, and socioeconomic realms. P/NP or letter grading.

**14W. Introduction to French Culture and Civilization in English (5)** Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 14. Study of contemporary French institutions and issues in cultural, political, and socioeconomic realms. Satisfies Writing II requirement. Letter grading.

**16. Society And Self in Early Modern France (5)** Lecture, three hours; discussion, one hour. Role of religion, politics, and sociability in constructing self and understanding its relation with society in early modern France. Development of students' critical thought and knowledge of French and European intellectual tradition. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**41. French Cinema and Culture (5)** Lecture/screenings, five hours; discussion, one hour. Introduction to French culture and literature through study of films of cultural and literary significance. P/NP or letter grading.



**60. French and Francophone Novel (5)** Lecture, three hours; discussion, one hour. Study of literary masterpieces produced by writers from France and Francophone world (Canada, Africa, Caribbean, etc.) from 17th to early 21st century. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Written Expression: Techniques of Description and Narration (5)** Lecture, three hours. Requisite: course 5. Taught in French. Writing assignments follow close analysis of relevant texts, film, and related grammatical structures. Examination of vocabulary and structures associated with descriptive writing and French verb tense system required for narration. P/NP or letter grading.

**101. Advanced Expository Writing: Techniques of Argumentation (4)** Lecture, three hours. Requisite: course 100. Study of rhetorical devices and revision of related grammatical structures. Writing assignments follow analysis of relevant texts. P/NP or letter grading.

**104. Theory and Correction of Diction (4)** Lecture, three hours. Enforced requisite: course 6. Study of individual sounds (vowels, consonants, and semi-vowels), including rhythm, intonation, and phrasing, and of learning sound—spelling correspondences to help sight read accurately. Thorough study of symbols of International Phonetic Alphabet (IPA) to give students tools to work on pronunciation systematically. Standard French serves as model, with examination of pronunciation changes and various dialects that are spoken in Francophone world to improve listening comprehension and pronunciation. P/NP or letter grading.

**105. Structure of French (4)** Lecture, three hours. Prior background in linguistics not required. Introduction to linguistic analysis of French in areas of phonology, morphology, syntax, and language variation. P/NP or letter grading.

**107. Advanced Oral Expression (4)** Lecture, three hours. Requisite: course 6. Discussion and analysis of current events and sociocultural issues; techniques of argumentation. P/NP or letter grading.

**108. Advanced Practical Translation (4)** Lecture, three hours. Enforced requisite: course 5. Translation of literary, sociocultural, and journalistic texts. May include editorials, polemical issues, film subtitles, biography and interview, formal and informal reporting, advertising and idiomatic language. Comparative stylistics of translation. P/NP or letter grading.

**109. French for Professional Purposes: Language and Communication in Professional Environment (4)** Lecture, three hours. Requisite: course 6. Oral and written communication in professional environment, including job search (résumé and cover letter), correspondence (professional letter and e-mail), and how to understand and negotiate work life in French-speaking company. P/NP or letter grading.

**110XP. French in Community (5)** Lecture, three hours; fieldwork, four hours. Requisite: course 5. French immigrants started to settle in Los Angeles already in the 19th century. Today, Los Angeles has the third-largest population of French citizens in the U.S. The francophone community includes people of very diverse backgrounds such as francophone Africa, Benelux countries, and Canada. Unlike other communities, French speakers are not always easy to track down in the city because of their geographic, cultural, and social diversity. French immersion schools allow for an opportunity to connect with the francophone community of Los Angeles and its complex dynamics. Students work in a public-school context with children belonging to Los Angeles' francophone community. Students collaborate with local stakeholders of French language education to address needs of Los Angeles area public schools and enhance community well-being. A West Los Angeles school hosts students for the quarter. P/NP or letter grading.

**114A. Survey of French Literature: Medieval and Renaissance Literature (5)** Lecture, three hours. Requisite: course 12. Masterpieces of medieval and Renaissance literature, including examples of epic (*La Chanson de Roland*), romance (Chrétien de Troyes' *Yvain*), and Renaissance prose and poetry (including Marot, Du Bellay, Ronsard, Rabelais, Marguerite de Navarre, and Montaigne). P/NP or letter grading.

**114B. Survey of French Literature: 17th and 18th Centuries (5)** Lecture, three hours. Requisite: course 12. Study of selections from major works of classicism and Enlightenment, including those by Racine, Pascal, La Fayette, La Fontaine, Laclos, Diderot, Voltaire, and Rousseau. P/NP or letter grading.

**114C. Survey of French Literature: 19th and 20th Centuries (5)** Lecture, three hours. Requisite: course 5. Taught in French. Study of major literary movements and writers of period, including works by Balzac, Baudelaire, Duras, Flaubert, Gide, Hugo, Proust, Robbe-Grillet, Sartre, Stendhal, and Zola. P/NP or letter grading.

**115. Studies in Medieval French Culture and Literature (4)** Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of medieval French culture and literature, including lyric poetry and narrative romance, history of medieval warfare, comedy, and class structures. May be repeated for credit with topic change. P/NP or letter grading.

**116. Studies in Renaissance French Culture and Literature (4)** Lecture, three hours. Taught in French. Study of Renaissance French culture and literature, including *la Pléiade* and 16th-century poetry, linguistic and poetic revolution, novel and early prose, and late French humanism. May be repeated for credit with topic change. P/NP or letter grading.

**117. Studies in 17th-Century French Culture and Literature (4)** Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of 17th-century French culture and literature, including theater, philosophers, moralists, novelists, and cultural, political, social, religious, and courtly aspects. May be repeated for credit with topic change. P/NP or letter grading.

**118. Studies in 18th-Century French Culture and Literature (4)** Lecture, three hours. Taught in French. Study of 18th-century French culture and literature, including satire, novel, theater, philosophers, and theoretical writings. May be repeated for credit with topic change. P/NP or letter grading.

**119. Studies in 19th-Century French Culture and Literature (4)** Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of 19th-century French culture and literature, including Romanticism, generation of 1848, naturalism and symbolism, and genres and trends from 1885 through World War I. May be repeated for credit with topic change. P/NP or letter grading.

**120. Studies in 20th-Century French Culture and Literature (4)** Lecture, three hours. Requisite: course 5. Taught in French. Study of 20th-century French culture and literature, including early 20th-century writers, surrealism, literature from 1915 to 1945, post-World War II literature, existentialism, new novel, theater, and poetry. May be repeated for credit with topic change. P/NP or letter grading.

**121. Studies in Francophone Cultures and Literatures (4)** Lecture, three hours. Enforced requisite: course 5. Taught in French. Study of Francophone cultures and literatures, including works by poets, playwrights, and novelists from Caribbean, North Africa, Quebec, and sub-Saharan Africa, immigrant narratives, and colonialism and postcolonial studies. May be repeated for credit with topic change. P/NP or letter grading.

**130. Contemporary French and Francophone Cultures (4)** Lecture, three hours. Requisite: course 5. Taught in French. Study of contemporary France and Francophone world (Africa, Asia, Caribbean, Quebec), government, institutions, and cultural, economic, social, and political issues. May be repeated for credit with topic change. Letter grading.

**133. French and Francophone Short Story (4)** Lecture, three hours. Taught in French. Survey of short fiction forms in France and Francophone world. P/NP or letter grading.

**135. Eco-Citizenship: Encounters with Eco-Citizens (4)** Lecture, three hours. Enforced requisite: course 6. Taught in French. Not open to students with credit for course 165. Exploration of what eco-citizen is, what it means to be eco-citizen, if we are eco-citizens, and why. Answers to these questions by studying sustainability in France. Study of French cities (i.e., Nantes) that act as real-life laboratories. Using reading, videos, and podcasts, students make observations and draw some conclusions regarding concept of eco-citizenship. Study of some theories on eco-citizenship developed by French thinkers. Exploration of how French citizens aspire to be eco-citizens. Students meet with them formally and informally through readings, videos, and virtual meetings. Examination of several experiments put in place by these cities, and assessment of whether these are successes or failures. Comparison and contrast of actions to protect environment developed in Los Angeles and at UCLA. P/NP or letter grading.

**136. French and Francophone Autobiography (4)** Lecture, three hours. Requisite: course 5. Taught in French. Rhetoric of genre and its relation to broad questions of identity, gender, race, and class. May be repeated for credit with topic change. P/NP or letter grading.

**137. French and Francophone Intellectual History (4)** Lecture, three hours. Requisite: course 12 or 100. Taught in French. Exploration of themes that address particular problem of French literature, civilization, or ideas. May be repeated for credit with topic change. P/NP or letter grading.

**138. Contemporary French Theory (4)** Lecture, three hours. Requisite: course 12 or 100. Taught in French. Study of French theorists (Barthes, Baudrillard, Cixous, Derrida, Foucault, Irigaray) and major concepts in contemporary French thought, with attention to its influence on and application to literary and nonliterary texts. May be repeated for credit with topic change. P/NP or letter grading.

**139. Paris: Study of French Capital (4)** Lecture, three hours. Enforced requisite: course 5. Taught in French. Textual and visual exploration of historical and imaginary (re)constructions of Paris, beginning with its earliest history and gradual formation of this great urban complex in maps from Renaissance to 20th century. Study of city's streets and quarters, traffic and transportation, multiple layers of past, present, and future, and flâneurs and insurrectionists through wide range of literary and critical texts. Readings cover mainly 19th and 20th centuries—Honoré de Balzac, Charles Baudelaire, Emile Zola, Marcel Proust, Louis-Ferdinand Céline, and others. P/NP or letter grading.

**140. Nantes: Shape of City (4)** Lecture, three hours. Enforced requisite: course 6. Taught in French. Not open for credit to students with credit for course 170. Metaphorical and virtual exploration of city of Nantes in western France to discover rich culture. Study of French government's repressive measures against Breton culture, and especially Breton language. Examination of Nantes's dark part, i.e. 18th-century slave trade. Study of how people today made it their mission to recover this repressed memory, and to create connections with African countries, victims of slave trade. Examination of Nantes's industrial part and how in recent years old and abandoned industrial sites are transformed into inclusive spaces such as village solidaire, place to combat homelessness and promote social connections for all. P/NP or letter grading.

**141. French Cinema (4)** Lecture, three hours. Study of French cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

**142. Francophone Cinema (4)** Lecture, three hours. Study of Francophone (Africa, Caribbean, postcolonial communities in France) cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

**160. Francophone Cultures in English (4)** Lecture, three hours. Study of historical, anthropological, legal, literary, or filmic texts to provide students with broad view of some main issues in field of colonial and postcolonial Francophone studies. P/NP or letter grading.

**161. French and Francophone Theater in Translation (4)** Lecture, three hours. Through plays of 20th century, analysis of struggles of individuals and social groups in contexts that are historical, political, philosophical (existentialism, absurd), and cultural (colonialism and conformism). May be repeated for credit with topic change. P/NP or letter grading.

**163. French and Francophone Short Story in Translation (4)** Lecture, three hours. Survey of short fiction forms in France and Francophone world. May be repeated for credit with topic change. P/NP or letter grading.

**164. French and Francophone Novel in Translation (4)** Lecture, three hours. Study of French novels. May be repeated for credit with topic change. P/NP or letter grading.

**165. Eco-Citizenship: Encounters with Eco-Citizens in Translation (4)** Lecture, three hours. Not open to students with credit for course 135. Exploration of what eco-citizen is, what it means to be eco-citizen, if we are eco-citizens, and why. Answers to these questions by studying sustainability in France. Study of French cities (i.e., Nantes) that act as real-life laboratories. Using reading, videos, and podcasts, students make observations and draw some conclusions regarding concept of eco-citizenship. Study of some theories on eco-citizenship developed by French thinkers. Exploration of how French citizens aspire to be eco-citizens. Students meet with them formally and informally through readings, videos, and virtual meetings. Examination of several experiments put in place by these cities, and assessment of whether these are successes or failures. Comparison and contrast of actions to protect environment developed in Los Angeles and at UCLA. P/NP or letter grading.

**166. French and Francophone Autobiography in Translation (4)** Lecture, three hours. Rhetoric of genre and its relation to broad questions of identity, gender, race, and class. May be repeated for credit with topic change. P/NP or letter grading.

**167. French and Francophone Intellectual History in Translation (4)** Lecture, three hours. Readings of French and Francophone writers, historians, and thinkers. May be repeated for credit with topic change. P/NP or letter grading.

**169. Paris: Study of French Capital in Translation (4)** Lecture, three hours. Textual and visual exploration of historical and imaginary (re)constructions of Paris, beginning with its earliest history and gradual formation of this great urban complex in maps from Renaissance to 20th century. Study of city's streets and quarters, traffic and transportation, multiple layers of past, present, and future, and flâneurs and insurrectionists through wide range of literary and critical texts. Readings cover mainly 19th and 20th centuries—Victor Hugo, Charles Baudelaire, Jules Verne, Emile Zola, André Breton, Walter Benjamin, Roland Barthes, and others. P/NP or letter grading.

**170. Nantes: Shape of City in Translation (4)** Lecture, three hours. Not open for credit to students with credit for course 140. Metaphorical and virtual exploration of city of Nantes in western France to discover rich culture. Study of French government's repressive measures against Breton culture, and especially Breton language. Examination of Nantes's dark part, i.e. 18th-century slave trade. Study of how people today made it their mission to recover this repressed memory, and to create connections with African countries, victims of slave trade. Examination of Nantes's industrial part and how in recent years old and abandoned industrial sites are transformed into inclusive spaces such as village solidaire, place to combat homelessness and promote social connections for all. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars in Translation (4)** Seminar, three hours. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit with consent of major adviser. P/NP or letter grading.

**191B. Variable Topics Research Seminars: French (4)** Seminar, three hours. Taught in French. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit with consent of major adviser. P/NP or letter grading.

**195. Community or Corporate Internships in French (4)** Tutorial, to be arranged. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**198. Honors Research in French (4)** Tutorial, three hours. Limited to junior/senior French majors with 3.5 departmental and 3.25 overall grade-point averages. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in French (2 to 4)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Contemporary French Theories (4)** Lecture, three hours. Introductory study of French structuralist and poststructuralist thought in literature, linguistics, psychoanalysis, anthropology, philosophy, and feminism, that may include texts by Althusser, Barthes, Deleuze, Derrida, Foucault, Genette, Irigaray, Kristeva, Lacan, Lyotard, and others. S/U or letter grading.

**201. Techniques of Literary Analysis (4)** Lecture, three hours. Practice in close analysis of literary texts, including explication de texte. S/U or letter grading.

**202. Cultural Studies (4)** Lecture, three hours. Introduction to theoretical approaches to popular and mass culture, and to postcolonial and Francophone cultures. Topics include emergent disciplines and theories such as sociology

and structuralism, city, revolution, avant-garde strategies, media, diaspora during postwar modernization, Algerian War, May 68, and beyond. Theorists include Barthes, de Certeau, Bourdieu, Baudrillard, Lyotard, Ross, Rey Chow, Virilio. S/U or letter grading.

**203. Contemporary Francophone Literature (4)** Lecture, three hours. Study of Francophone African, Caribbean, Vietnamese, or Quebec literatures and cultures, with specific attention to issues of cultural contact, language, colonialism, anticolonialism, nationalism, resistance and dissidence, and postcolonial theory. S/U or letter grading.

**204. Studies in Autobiography (4)** Lecture, three hours. Introduction to theories of autobiography and subjectivity, and to genre of autobiography in literatures in French across centuries. Topics include early modern approaches to self-writing, Rousseau and emergence of modern self, women's autobiography in France and Francophone world. Theorists may include Georges Gusdorf, Philippe Lejeune, Paul de Man, Jacques Derrida, Helene Cixous, Michel Foucault, Pierre Bourdieu, Toril Moi. S/U or letter grading.

**205. Studies in Cinema and Literature (4)** Lecture, three hours. Discussion of selected topics in French and Francophone cinema and literature. S/U or letter grading.

**207. Studies in History of Ideas (4)** Seminar, three hours. Particular problems in French literature and ideas. May be repeated for credit. S/U or letter grading.

**208. Studies in Literary Criticism (4)** Seminar, three hours. Readings in literary criticism, theory, and literature from any period of French literature. May be repeated for credit. S/U or letter grading.

**209. Studies in Literary Genre (4)** Seminar, three hours. Advanced research and study of literary genres such as poetry, drama, fiction, autobiography, or performance and of theory of these genres. S/U or letter grading.

**210. Paleography of Latin and Vernacular Manuscripts, 900 to 1500 (4)** (Same as Classics M218, English M215, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

**214. Problematics of Medieval Language and Literature (4)** Lecture, three hours. Introduction to Old French and problematics of medieval literature. S/U or letter grading.

**215. Studies in Middle Ages (4)** Seminar, three hours. Examination of nature of cross-cultural, crosslinguistic, and cross-confessional exchange in medieval and early modern periods and France's role in it. S/U or letter grading.

**216. Renaissance (4)** Lecture, three hours. French literature of 16th century studied within historical, intellectual, and cultural contexts. Letter grading.

**217. 17th Century (4)** Lecture, three hours. Readings in 17th-century literature studied within historical, cultural, and literary contexts. S/U or letter grading.

**218. Enlightenment (4)** Lecture, three hours. Readings in 18th-century French literature and thought: novels, satires, plays, and other key Enlightenment philosophies. Letter grading.

**219. 19th Century (4)** Lecture, three hours. Readings in 19th-century literature, covering development of novel, lyric poetry, and theater from Romantic period to fin-de-siècle. S/U or letter grading.

**220. 20th Century (4)** Lecture, three hours. Overview, both historical and analytical, of 20th-century French literature set in context of several key critical topics that interrogate canonical interpretation. Letter grading.

**296. Research Methods and Writing (2)** Seminar, two hours. Advanced study of current topics in literary and cultural analysis and in critical theory. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**596. Directed Individual Studies or Research. (2 to 4)** Tutorial, to be arranged. S/U or letter grading.

**597. Preparation for Second-Year Review or PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. May be repeated for maximum of 16 units. S/U grading.

**598. Research for and Preparation of MA Thesis. (2 to 4)** Tutorial, to be arranged. Maximum of 4 units may be applied toward MA degree requirements. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 8)** Tutorial, to be arranged. S/U grading.

## German Courses

### Lower Division

**1. Elementary German (4)** Lecture, five hours; laboratory, one hour. P/NP or letter grading.

**2. Elementary German (4)** Lecture, five hours. Enforced requisite: course 1. P/NP or letter grading.

**3. Elementary German (4)** Lecture, five hours. Enforced requisite: course 2. P/NP or letter grading.

**4. Intermediate German (4)** Lecture, five hours; laboratory, one hour. Enforced requisite: course 3. P/NP or letter grading.

**5. Intermediate German (4)** Lecture, four hours; laboratory, one hour. Enforced requisite: course 4. P/NP or letter grading.

**6. Intermediate German (4)** Lecture, four hours; laboratory, one hour. Enforced requisite: course 5. P/NP or letter grading.

**8. Elementary German: Intensive (12)** Lecture, 15 hours; laboratory, five hours. Intensive basic course in German equivalent to courses 1, 2, and 3. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**50B. Great Works of German Literature in Translation: Romanticism to Present (5)** Lecture, three hours; discussion, one hour. Study and analysis of selected masterworks in English translation, including authors such as E.T.A. Hoffmann, Heine, Fontane, Rilke, Kafka, Brecht, Thomas Mann, Hesse, Grass, Böll, and Christa Wolf. May not be applied toward completion of major in German. P/NP or letter grading.

**59. Holocaust in Film and Literature (5)** Lecture/screenings, five hours; discussion, one hour. History of Holocaust and its present memory through examination of challenges and problems encountered in trying to imagine its horror through media of literature and film. P/NP or letter grading.

**61A. Modern Metropolis: Berlin (5)** Lecture, three hours; discussion, one hour. Cultural, political, architectural, and urban history of one of most vibrant and significant cities in world. Exploration of city over 800 years, using innovative mapping tools to understand how Berlin evolved from fortified mercantile town into global city. P/NP or letter grading.

**88. Lower-Division Seminar (4)** Seminar, three hours. Course of variable content limited to topics of current interest and offered whenever staff member is available. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102. War, Politics, Art (5)** Lecture, three hours; discussion, one hour. Taught in English. Analysis of interrelationship between politics, social conditions, and arts with respect to war. World Wars I and II and German history to be used as model for principal questions of society and philosophical thinking. P/NP or letter grading.

**103. German Film in Cultural Context: Early German Film (4)** Lecture, two hours; discussion, one hour. Taught in English. Survey of German film between 1919 and 1945. Analysis of technological and stylistic development of film from silent Expressionist films to Nazi propaganda and entertainment films. Film discussions enhanced by interactive media. Letter grading.

**104. German Film in Cultural Context, 1945 to Present (4)** Lecture, three hours. Taught in English. Survey of German film since 1945 in its thematic and stylistic diversity. How did German filmmakers grapple with aftermath of World War II and Holocaust, economic recovery, Cold War and division of Germany, reunification, and growth of minority communities? May be repeated twice for credit with topic change. Letter grading.

**109. Jewish Question and German Thought (4)** Lecture, three hours. Taught in English. Analysis of works that represent process of Jewish assimilation, disenfranchisement, and extermination, including authors such as Mendelssohn, Heine, Kafka, Paul Celan, Nelly Sachs, Anne Frank, and others. Letter grading.

**110. Special Topics in Modern Literature and Culture (4)** Lecture, three hours. Taught in English. Content varies with instructor and may include works by authors such as Thomas Mann, Rilke, Kafka, Brecht, Christa Wolf, and others. May be repeated for credit. Letter grading.

**112. Feminist Issues in German Literature and Culture (4)** Lecture, three hours. Taught in English. Analysis of major issues in German feminism today (e.g., status, creative work, and reception of women writers in various periods such as Romanticism, Fascism, and/or divided/unified Germanies). Letter grading.

**113. German Folklore (4)** Lecture, three hours. Taught in English. Survey of various folklore genres in cultural context, including legends, proverbs, and cultural enactments such as carnival. Letter grading.

**114. Fairy Tales and Fantastic (5)** Lecture, three hours; discussion, one hour. Taught in English. History and reception of folklore collections in Europe, with particular attention to ideology and influence of Grimms' tales. Interpretation of selected tales and their transformations and appropriation in literature, film, advertising, and pedagogy. P/NP or letter grading.

**115. 19th-Century German Philosophy (4)** Lecture, three hours; discussion, one hour. Taught in English. German philosophy, which may generally be characterized as philosophy that takes activity rather than passive subsistence to be fundamental nature of all things, is one of Germany's greatest gifts to humanity. Exploration of first half of two-century history of German philosophy—period from Kant to Nietzsche, including Hegel, Kierkegaard, and Marx. Letter grading.

**116. 20th-Century German Philosophy (4)** Lecture, three hours; discussion, one hour. Taught in English. German philosophy, which may generally be characterized as philosophy that takes activity rather than passive subsistence to be fundamental nature of all things, is one of Germany's greatest gifts to humanity. Exploration of second half of two-century history of German philosophy—period from Nietzsche through Habermas, including Heidegger, Gadamer, Jaspers, and Frankfurt School theorists. Letter grading.

**117. German Exile Culture in Los Angeles (4)** Lecture, three hours. Taught in English. Cultural and historical exploration of exile as site of creative activity for German writers and other artists during and after World War II. General questions of cultural migration and cultural transfer to be thematized. P/NP or letter grading.

**118SL. Between Memory and History: Interviewing Holocaust Survivors (4)** Seminar, two hours; fieldwork, two hours. Strongly recommended requisites: prior European and Holocaust history courses. Examination of historical value of eyewitness testimony of Holocaust through unique service opportunities that bring students together with survivors. Question of testimony approached from number of perspectives, including legal, historical, and ethical, to examine vexed relationship between history and memory. Examination of survivor testimony through classic memoirs in field, such as Primo Levi's *The Drowned and the Saved* and Ruth Kluger's *Still Alive*. Through collaboration with Jewish Family Services, 1939 Club, and Los Angeles Museum of Holocaust, students meet and work with Holocaust survivors and undertake collaborative research projects and oral histories. Students also research and curate series of interactive tours through Museum of Holocaust. Letter grading.

**140. Language and Linguistics (4)** Lecture, three hours. Enforced requisite or corequisite: course 6. Taught in English with German proficiency required. Theories and methods of linguistics, with emphasis on structure of modern standard German, its phonology, morphology, syntax, semantics, and pragmatics. Other topics include diachronic, spatial, and social variation of German (i.e., its historical development, dialectology, and sociolinguistic dimensions). Letter grading.

**141. Current Topics in Germanic Linguistics (4)** Lecture, three hours. Enforced requisite: course 152. Taught in English with German proficiency required. In-depth investigation of one topic in field of Germanic linguistics,

such as phonetics and phonology, morphology and syntax, semantics and pragmatics, social and spatial variation (i.e., sociolinguistics and dialectology of German), or history of German. May be repeated for credit. Letter grading.

**C142. Linguistic Theory and Grammatical Description (4)** Lecture, three hours. Enforced requisite: course 140 or Linguistics 20. Taught in English with German proficiency required. Problems in structure of Dutch and German, considered from theoretical frameworks such as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C238. Letter grading.

**152. Conversation and Composition on Contemporary German Culture and Society I (4)** Lecture, three hours. Requisite: course 6. Taught in German. Structured around themes as they emerge in contemporary German texts ranging from news magazine articles to literature, with emphasis on speaking and writing proficiency. Presentation software featured. P/NP or letter grading.

**153. Conversation and Composition on Contemporary German Culture and Society II (4)** Lecture, three hours. Requisite: course 6. Taught in German. Structured around themes as they emerge in contemporary German texts ranging from news magazine articles to literature, with emphasis on speaking and writing proficiency. Presentation software featured. P/NP or letter grading.

**154. Business German (4)** Lecture, three hours. Requisite: course 6. Taught in German. Specialized language course that teaches German business administration, practices, and correspondence, with attention to cultural nuances. Ongoing developments in European Union analyzed via newspaper articles and Internet. P/NP or letter grading.

**155. Advanced German Language through Cultural History and Current Affairs (4)** Lecture, three hours. Requisites: courses 152, 153. Taught in German. Advanced German language course that juxtaposes cultural history with current affairs to teach complex speaking and writing skills of interpretation, analysis, and criticism. Readings may include selections from Luther, Heine, Freud, and current authors. Students create their own interactive media presentations. Letter grading.

**157. Contemporary German Cinema: Advanced Conversation and Composition (4)** Lecture, three hours. Taught in German. Development of advanced speaking skills and thorough grounding in essay writing in German by considering issues of style, structure, grammar, and vocabulary. Introduction to contemporary German cinema to expose students to slice of German (and European) culture and history, with focus on notion of boundary. Examination of different types of boundaries and borders (e.g., physical borders between countries; boundaries created by various political ideologies; socially created boundaries of class, race, and gender; boundary between memory and experience), ways in which people cross them, and their reasons for these transgressions. Analysis of movies to better understand various cinematic techniques. P/NP or letter grading.

**158. Introduction to Study of Literature (4)** Lecture, three hours. Taught in German. Introduction to most important terms and resources of literary analysis to help students develop and improve skills in close and critical reading of literary texts, develop basic research techniques, acquire familiarity with basics of literary and cultural analysis, and find pleasure in pursuit of literary and cultural study. Letter grading.

**159. German Cultural Studies (4)** Lecture, three hours. Requisite: course 152 or 153. Taught in German; some theoretical readings in English. Exploration of German culture in different historical contexts. Examination of various cultural spaces, practices, and standpoints as staged in literary and nonliterary texts, with emphasis on constructions of sex and gender, memory and national identity, and ethnicity and race. Analysis of ways of seeing, thinking, and talking about these issues as manifested in several cultural debates that dominated public discussions in Germany (and Europe) for several weeks, months, or even years (e.g., debates about admission of women to universities at end of 19th century, reconstructing/preserving sites of memory in postwar Germany, and headscarf and integration in contemporary Germany). Letter grading.

**170. Goethe and World Literature (4)** Lecture, three hours. Requisite: course 152 or 153. Taught in German. Reading and discussion of representative works (except Faust) from Goethe's early period (*Die Leiden des jungen Werther*) through maturity and old age (*West-östlicher Divan*). Students work with digital humanities methods to improve German language competency and evaluate Goethe's global influence on Western intellectual history. Letter grading.

**173. Advanced Study of Modern Literature (4)** Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Naturalism, Expressionism, and other early 20th-century literary movements and works. Letter grading.

**174. Advanced Study of Contemporary Literature and Culture (4)** Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Literature after 1945 in German-speaking countries, including issues such as national borders, ethnic identity, gender relations, and commercialization of culture. Letter grading.

**175. Intercultural Germany: Literature, Politics, Migration, and Culture (4)** Lecture, three hours. Taught in German. Most readings in German; some theoretical readings in English. Exploration of issues surrounding immigration and intercultural identity in Germany since 1960, with focus on period after 1990. Examination of various cultural spaces, practices, and standpoints as staged in literary and nonliterary texts, with emphasis on constructions of ethnicity, nation, race, class, and gender. Analysis of several political and cultural debates that dominated media and public discussions in Germany and Europe for several weeks. Discussion of several literary texts by Turkish German and other minority/intercultural writers. Examination of hip-hop minority music and culture as voices in political debates. Exploration of contemporary controversies around Islam in Germany. Reading of several theoretical pieces that examine relationships between immigration, globalization, culture, and identity. P/NP or letter grading.

**187. Undergraduate Seminar (4)** Seminar, three hours. Required of all German majors who are candidates for general secondary instructional credential. Content varies by instructor and may include advanced work in folklore, film, and German studies. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: German (4)** (Formerly numbered 191A.) Seminar, three hours. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. May be repeated for credit with consent of major adviser. P/NP or letter grading.

**191C. Capstone Seminar (2)** Seminar, three hours. Limited to senior German majors. Collaborative discussion of and reflection on courses already taken for major, drawing out and synthesizing larger themes and culminating in paper or other final project. Must be taken in conjunction with one course numbered 140 or higher. Letter grading.

**197. Individual Studies in German. (2 to 4)** Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in German (4)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**201C. Theories of Literary Interpretation (4)** Lecture, three hours. Advanced analysis and discussion of various models of literary interpretation and schools of thought such as hermeneutics, psychoanalytic criticism, social-historical approaches, semiotics, structuralism, and poststructuralism. Topics vary with instructor. Letter grading.

**202A. Middle High German (4)** Lecture, three hours. Introduction to Middle High German language, with particular emphasis on developing facility in reading. Study of grammar, syntax, and vocabulary combined with introduction to poetic forms and cultural context. Letter grading.

**202B. Readings in Middle High German Literature (4)** Lecture, three hours. Introduction to medieval German literature and literary history and to use of contemporary theory in study of medieval texts. Continued practice in reading Middle High German, although most texts to be read in modern translation. Letter grading.

**204. Early Modern German Literature (4)** Lecture, three hours. Selected readings from 1500 to 1700, with introduction to development of German as modern literary language and to literary genres and cultural models. Impact of Thirty Years' War on German literary production and reception in German baroque. Letter grading.

**206. Studies in Enlightenment Literature and Culture (4)** Lecture, three hours. Analysis of major 18th-century German texts from philosophic, social-historical, psychohistorical, and literary perspectives. Letter grading.

**207. Weimar Classicism (4)** Lecture, three hours. Reading and interpretation of major works of German classicism. May include problems in reception of classicism by later authors and cultural theorists. Letter grading.

**208. Romanticism (4)** Lecture, three hours. Analysis of selected works and theories of German Romantics such as Friedrich Schlegel, Novalis, and Hoffman, with attention to relationship between Romanticism and other periods. Letter grading.

**209C. 19th-Century Narrative Prose (4)** Lecture, three hours. Analysis of prose works between Romanticism and naturalism. Discussion of development of literary realism and form of novella. Letter grading.

**210A. Naturalism, Symbolism, and Expressionism (4)** Lecture, three hours. Analysis of selected works (poetry, drama, prose) of early modernism from Hauptmann to Kafka. Discussion of sociological spectra and pluralism of styles and forms. Letter grading.

**210B. 20th-Century Novel to 1945 (4)** Lecture, three hours. Prose works in first half of 20th century as they express war experience, crisis of consciousness, and cultural conflicts between wars, as well as innovations in narrative technique. Letter grading.

**211. Postwar Literature (4)** Lecture, three hours. Study of major works by German-speaking authors writing since World War II. Examination of issues such as identity crises, nationalism and divided Germany, gender expectations, and social-political attitudes. Letter grading.

**212. Contemporary Literature and Culture (4)** Lecture, three hours. Analysis of current cultural issues and their relation to literary production and interpretation. Topics may include areas such as feminism, postcolonialism, postmodernism, and contemporary theories of textuality. Letter grading.

**213. Topics in Literature and Film (4)** Lecture, three hours. With focus on two different modes of cultural representation, examination of topics in German literature and film from Weimar Republic to present. Study of media theory, feminist film theory, and interrelationships between film, literature, and social history. Letter grading.

**217. History of German Language (4)** Discussion, three hours. Historical survey of development of standard literary German language from time of Indo-European unity through proto-Germanic, West Germanic, medieval period, Reformation, baroque period, and Enlightenment until its final codification at end of 19th century. S/U or letter grading.

**230. Survey of Theory in Historical Linguistics (4)** Lecture, three hours. Systematic overview of theories of historical linguistics. Letter grading.

**231. Gothic (4)** Discussion, three hours. Systematic study of phonology and grammar of Gothic language, with readings in Wulfila's translation of Bible and introduction to history of Goths and their place in development of modern Europe. S/U or letter grading.

**232. Old High German (4)** Discussion, three hours. Introduction to earliest phases of German literature, with extensive readings in major documents of that period (750 to 1050). Emphasis on grammatical interpretation of these documents and identification of dialects used in their composition. S/U or letter grading.

**233. Old Saxon (4)** Discussion, three hours. Introduction to study of earliest documents in Old Low German. Readings in *Heliand* and study of Old Saxon Genesis. S/U or letter grading.

**C238. Linguistic Theory and Grammatical Description (4)** Lecture, three hours. Enforced requisite: course 140 or Linguistics 20. Taught in English with German proficiency required. Problems in structure of Dutch and German, considered from theoretical frameworks such as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C142. Graduate students meet as group one additional hour each week and write research papers of greater length and depth. Letter grading.

**251. Seminar: Germanic Linguistics (4)** Seminar, three hours. Current topics in synchronic or diachronic linguistics, such as specific issues in generative grammar, sociolinguistics and dialectology, or language contact. Letter grading.

**252. Seminar: Historical and Comparative German Linguistics (4)** Seminar, three hours. Topics selected from field of historical German phonology and syntax according to needs and preparation of students enrolled (e.g., West Germanic problem and classification of Germanic languages, development of Germanic verbal and nominal morphology, proto-Germanic syntax). S/U or letter grading.

**253. Seminar: Medieval Literature (4)** Seminar, three hours. Investigation of selected topic or particular theoretical issue that arises in study of medieval literature. Letter grading.

**256. Seminar: Enlightenment (4)** Seminar, three hours. Selected problems in cultural, literary, and philosophic history. May include modern critiques of Enlightenment thought. Letter grading.

**257. Seminar: Age of Goethe (4)** Seminar, three hours. Selected topics in literature and culture between 1775 and 1832, with special emphasis on work of Goethe and Schiller as it relates to philosophic texts such as Hegel's *Phänomenologie des Geistes* or as it relates to historical events such as French and American Revolutions. Letter grading.

**258. Seminar: Romanticism (4)** Seminar, three hours. Discussion of specific author or topic from Romantic period, possibly in close connection with course 208. Critical review of secondary works. S/U or letter grading.

**259. Seminar: 19th-Century Literature (4)** Seminar, three hours. Discussion of specific author or topic of 19th-century literature, possibly in close connection with course 209A, 209B, or 209C. Critical review of secondary works. S/U or letter grading.

**260. Seminar: Modern Period (4)** Seminar, three hours. In-depth analysis of one particular issue in pre-1945 German literature and culture. Letter grading.

**261. Seminar: Contemporary Literature (4)** Seminar, three hours. In-depth analysis of one particular issue in post-1945 German literature and culture. Letter grading.

**263. Seminar: Literary Theory (4)** Seminar, three hours. Special focus on particular theoretical school or interpretive paradigm. Content varies with instructor. Letter grading.

**264. Topics in Communicative, Cognitive, and Functional Approaches to Linguistic Analysis (4)** Seminar, three hours. Requisite: course C142 or C238. Readings, discussion, analyses, and validation procedures within sign-based linguistics, cognitive grammar, and discourse-functional approaches to language. Consideration of impact of grammaticalization theory on various non-formal approaches to synchronic linguistics. Discussion of work by Contini-Morava, Diver, Garcia, Goldberg, Janssen, Lakoff, Langacker, and Verhagen, as well as Bybee, Traugott, Hopper, and others. S/U or letter grading.

**265. German Philosophy (4)** Seminar, three hours. German philosophical tradition is one of most influential, difficult, and problematic Western world has known. Beginning with Kant's *Critique of Pure Reason* and continuing through Hegel, Marx, Nietzsche, and Heidegger to Arendt and thinkers of Frankfurt school, German philosophers have explored, more deeply and rigorously than any other Western thinkers, nature and limits (if any) of human mental activity. Results have been basic to social, political, and aesthetic theory as well as to philosophy itself. Exploration of thought of one member of that tradition by concentrating yearly on one exemplary text. Letter grading.

**596. Directed Individual Study or Research (4)** Tutorial, three hours. To be arranged with faculty member who directs study or research. Required research paper must be filed with department chair. S/U grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (4)** Tutorial, three hours. To be arranged with faculty member who directs examination preparation. S/U grading.

**598. Research for and Preparation of MA Thesis (4 to 12)** Tutorial, three hours. To be arranged with faculty member who directs research for and preparation of thesis. S/U grading.

**599. Research for and Preparation of PhD Dissertation (4 to 12)** Tutorial, three hours. To be arranged with faculty member who directs study. May be repeated. S/U grading.

## Italian Courses

### Lower Division

**1. Elementary Italian—Beginning (4)** Lecture, five hours. P/NP or letter grading.

**2. Elementary Italian—Continued (4)** Lecture, five hours. Enforced requisite: course 1. P/NP or letter grading.

**3. Elementary Italian—Continued (4)** Lecture, five hours. Enforced requisite: course 2. P/NP or letter grading.

**4. Intermediate Italian (4)** Lecture, five hours. Enforced requisite: course 3. P/NP or letter grading.

**5. Intermediate Italian (4)** Lecture, five hours. Enforced requisite: course 4. P/NP or letter grading.

**6. Intermediate Italian (4)** Lecture, three hours. Enforced requisite: course 5. Advanced grammar and composition course with readings from select literary works. P/NP or letter grading.

**9. Intensive Italian (12)** Lecture, 20 hours. Intensive language program equivalent to first year of college Italian (courses 1, 2, 3) and designed to develop basic language skills. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**42A. Italy through Ages in English: Saints and Sinners in Early Modern Italy (5)** Lecture, four hours; discussion, one hour. Examination of issues of cultural hegemony, political and religious freedom, and doctrinal conflict through Italy's early modern literary and artistic production. Texts may include Dante's *Divine Comedy*, Boccaccio's *Decameron*, Saint Catherine's letters, Machiavelli's *The Prince*, and Galileo's scientific writings. Artworks may include those of Raphael and Michelangelo, as well as Bernini's sculptures. P/NP or letter grading.

**42B. Italy through Ages in English: Modern and Contemporary Italy (5)** Lecture, four hours; discussion, one hour. Cultural and political developments from 18th century to present. Topics include Beccaria and opposition to death penalty and absolutism; Garibaldi, Italian Risorgimento, national liberation, and unification; Lombroso and criminology in new Italy; Mussolini and Fascism; Gramsci and Communism; Italian Catholicism; Berlusconi and media; migration and today's multiethnic Italy. Assigned works include relevant literature and memoirs, music, and film, futurist and fascist art, and organized crime fiction and film. P/NP or letter grading.

**42C. Italy Through the Ages in English: Food and Literature in Italy (5)** Lecture, four hours; discussion, one hour. Profile of Italian history and culture through analysis of gastronomic and literary texts. Special emphasis on late Middle Ages, Renaissance, and Risorgimento. P/NP or letter grading.

**46. Italian Cinema and Culture in English (5)** Lecture/screenings, five hours; discussion, one hour. Special topics in Italian culture as reflected and reinforced by the nation's prime artform, stressing aesthetics and ideology of films, contemporary Italian history, and politics. Rotating topics include sex and politics, comedy, integration, family networks, and neorealism. P/NP or letter grading.

**50A. Masterpieces of Italian Literature in English: Middle Ages to Baroque (5)** Lecture, four hours; discussion, one hour. Leading philosophical, religious, and sociopolitical issues in Europe, examined in authors such as St. Francis, Dante, Boccaccio, Petrarch, Lorenzo de' Medici, Machiavelli, Castiglione, Aristotle, and Tasso. P/NP or letter grading.

**50B. Masterpieces of Italian Literature in English: Enlightenment to Postmodernity (5)** Lecture, four hours; discussion, one hour. Comparative study of major literary texts and their adaptations into different forms of public spectacle, including theater, opera, and film. Works by Goldoni, Gozzi, Mascagni, Verga, Puccini, Pirandello, Calvino, Ortese, Zavattini, de Sica, and Taviani Brothers. Emphasis on development of ideas of spectacle. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Composition and Style (4)** Lecture, three hours. Enforced requisite: course 5. Taught in Italian. Development of writing techniques and proficiency in composition and style, with emphasis on editing for grammar and style. P/NP or letter grading.

**102A. Italian Cultural Experience in English (4)** Lecture, three hours. Study of cultural development of Italy. Roots of Western civilization; social and artistic achievements of communal society; Marco Polo, Dante, Boccaccio, Giotto, rise of Italian merchant class. P/NP or letter grading.

**102B. Italian Cultural Experience in English (4)** Lecture, three hours. Study of cultural development of Italy. Renaissance discovery of human genius; crucial period between Machiavelli and Galileo, leading Italy and Europe to scientific revolution. P/NP or letter grading.

**102C. Italian Cultural Experience in English (4)** Lecture, three hours. Study of cultural development of Italy. Birth of Italian nation from wars of independence to foundation of modern republic, delineated through narrative and cinema in historical context. P/NP or letter grading.

**103A. Introduction to Classic Italian Literary and Cultural Studies (4)** Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Selected classic works of Italian literature, theater, art, and culture from medieval era to Renaissance and baroque. Emphasis on critical methods and skills for analyzing and interpreting wide range of Italian texts and cultural formations in their historical context and in comparison to contemporary and transnational views. Representative authors may include Saint Francis of Assisi, Dante, Petrarch, Boccaccio, Saint Catherine of Siena, Machiavelli, Giotto, Botticelli, Michelangelo, Leonardo, Caravaggio, Gaspara Stampa, Veronica Franco, Ariosto, Tasso, and Galileo. P/NP or letter grading.

**103B. Introduction to Modern Italian Literary and Cultural Studies (4)** Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Selected modern works of Italian literature, theater, art, and culture from Enlightenment to present. Emphasis on critical methods and skills for analyzing and interpreting wide range of Italian texts and cultural formations in their historical context and in comparison to contemporary and transnational views. Representative authors may include Vico, Goldoni, Alfieri, Beccaria, Rosalba Carriera, Piranesi, Tiepolo, Leopardi, Manzoni, Pirandello, Aleramo, Marinetti, Boccioni, Modigliani, De Chirico, Calvino, Ortese, Pasolini, Franca Rame, and Dario Fo. P/NP or letter grading.

**110. Dante in English (4)** Lecture, three hours. Close study of one of world's greatest literary geniuses, particularly of his masterpiece, *Divine Comedy*, the archetypal medieval journey through the afterworld. P/NP or letter grading.

**113. Dante's *La Divina Commedia* (4)** Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of medieval philosophy, religion, and politics in *La Divina Commedia*, greatest literary achievement of the age. P/NP or letter grading.

**114B. Middle Ages: Medieval Humor, Moralism, and Society (4)** Lecture, three hours. Novelty of Boccaccio's witty and comic masterpiece, *Decameron*, analyzed within context of moral and social codes of culture of time. P/NP or letter grading.

**116A. Italian Renaissance: Renewal of Art and Thought (4)** Lecture, three hours. Study of Quattrocento and its representatives in arts and humanistic thought (i.e., Mantegna, Botticelli, Pico, Valla, and Ficino). P/NP or letter grading.

**116B. Italian Renaissance: Power and Imagination in Renaissance (4)** Lecture, three hours. Study of artistic world of Leonardo, Raffaello, Michelangelo, Titian, and literary masterpieces of Machiavelli, Castiglione, Ariosto, Tasso, in world molded by powerful political forces, such as Roman Papacy and Medici, Gonzaga, and D'Este courts. P/NP or letter grading.

**120. Modern and Contemporary Literature (4)** Lecture, three hours. Analysis of novels, short fiction, poetry, and drama in connection with modern and contemporary thought, politics, and culture. Authors may include D'Annunzio, Aleramo, Pirandello, Ungaretti, Montale, Pasolini, Ortese, Morante, Ginzburg, Calvino, Fo, Eco, Celati, and Tabucchi. P/NP or letter grading.

**121. Literature and Film (4)** Lecture, three hours. Comparative study of specific literary works and their adaptation into film and of different techniques in two media and forms of expression. Texts include literary works, screenplays, and works on literary and film theory. P/NP or letter grading.

**122. Italian Theater (4)** Lecture, three hours. Study of works for stage from Renaissance to present, including examples of opera and questions pertaining to acting, staging, and performance. May include texts by Machiavelli, Aretino, Alfieri, Gozzi, Goldoni, Verdi, Puccini, D'Annunzio, Amelia Rosselli, Dacia Maraini, Dario Fo, and Franca Rame. P/NP or letter grading.

**123. Modern Italian Cultural Studies (4)** Seminar, three hours. Reading, research, and writing on various cultural aspects of modern and contemporary Italy. Examination of contemporary Italian food culture, fashion and design, photography and visual arts, mass media, politics, music, and sports. P/NP or letter grading.

**124. Food and Literature in Italy (4)** Lecture, three hours. Profile of Italian history and culture through analysis of gastronomic documents, food traditions, and literary and visual works. Emphasis on late Middle Ages, Renaissance, and Risorgimento, or modern and contemporary movements such as *Cucina futurista* and slow food. Examination of relation of Italian traditions of food and eating with health, body, gender, community, politics, biodiversity, and environment. P/NP or letter grading.

**125. Italian through Opera (4)** Lecture, three hours. Requisite: course 6. Taught in Italian. Introduction to traditional Italian opera as means of appreciating culture of Italy, art form of opera, and study of Italian language at advanced level through reading of libretti. Six masterworks of Italian opera tradition—*Il Barbiere di Siviglia*, *La Bohème*, *Pagliacci*, *Otello*, *Tosca*, and *La Traviata*—offer culturally authentic contexts to learn about operas, their characters, plots, settings, and themes. Exploration of various historical, political, and cultural issues raised in each opera. P/NP or letter grading.

**131. Reading and Reciting (4)** Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Emphasis on diction, interpretation, and performance of one-act plays as vehicles for perfection of pronunciation, comprehension, and fluency. P/NP or letter grading.

**140. Italian Novella from Boccaccio to Basile in Translation (4)** Lecture, three hours. Analysis of development of Italian novella in its structure, historical context, and folk material. Special emphasis on how Italian novella influenced other European literatures. P/NP or letter grading.

**150. Modern Fiction in Translation (4)** Lecture, three hours. Select issues in 20th-century thought traced in writers of international fame, with focus on concerns and styles of several prose works such as Umberto Eco's *The Name of the Rose*, Pasolini's *The Ragazzi*, Pirandello's *The Late Mattia Pascal*, and Calvino's *The Cosmicomics*. P/NP or letter grading.

**152. Italy between Europe and Africa (4)** Lecture, three hours. Knowledge of Italian or background in Italian studies not required. Analysis and critical discussion of works by Italian, northern European, and African writers (including travelers and migrants) who from 18th century to present have seen or experienced Italian peninsula and islands as bridge between Europe and Africa, or mix of both. Readings include works by northern European and African authors about Italy, and Italian authors about Africa and southern Italy. P/NP or letter grading.

**158. Women, Gender, and Sexuality in Italian Culture (4)** (Same as Gender Studies M158.) Lecture, three hours; discussion, one hour. Analysis of gender roles, images of femininity and masculinity, patriarchy, myths of Madonna and Latin lover, condition of women in Italian society through history, politics, literature, film, and other media. Italian majors required to read texts in Italian. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.



**191. Variable Topics Research Seminars: Italian Studies (4)** Seminar, three hours. Research seminar with focus on themes and issues outside uniquely Italian literature topics covered in regular departmental undergraduate courses. Reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**195. Community or Corporate Internships in Italian (4)** Tutorial, three hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**198. Honors Research in Italian (4)** Tutorial, one hour. Limited to juniors/seniors. Development and completion of significant research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199A. Directed Research in Italian (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199B. Directed Capstone Research in Italian and Italian and Special Fields (4)** Tutorial, to be arranged. Requisites: courses 100 and at least four required courses for the major. Limited to senior Italian and Italian and Special Fields majors. Supervised individual research under guidance of faculty mentor. Capstone tutorial in which interdisciplinary paper (20 to 25 pages) is to be written in either Italian or English that requires students to synthesize their knowledge of Italian or Italian and one special field of study. Individual contract required. Letter grading.

## Graduate

**201. Bibliography and Methods of Research (4)** Lecture, three hours. S/U or letter grading.

**205. Studies in Criticism and Theory (4)** Seminar, three hours. History, theory, and practice of criticism. Presentation, discussion, and application of fundamental currents in aesthetics and criticism from Plato and Aristotle to present, including thematic and genre criticism, poststructuralist approaches, and feminist criticism. Letter grading.

**210. Studies in Early Italian Literature (4)** Lecture, three hours. Topics include origins of Italian language and study of early texts, Scuola Siciliana and early poetry of Central and Northern Italy, and Dolce Stil Novo. S/U or letter grading.

**214A. Studies in Medieval Literature: La Divina Commedia (4)** Lecture, three hours. S/U or letter grading.

**214B. Studies in Medieval Literature: Dante's Other Works (4)** Lecture, three hours. S/U or letter grading.

**214C. Studies in Medieval Literature: Petrarca's Canzoniere (4)** Lecture, three hours. S/U or letter grading.

**214D. Studies in Medieval Literature: Boccaccio's Decameron (4)** Lecture, three hours. S/U or letter grading.

**214E. Studies in Medieval Literature: Boccaccio's Other Works (4)** Lecture, three hours. S/U or letter grading.

**214F. Studies in Medieval Literature: Variable Topics (4)** Lecture, three hours. Variable-content seminar on themes and issues of medieval literature, with coverage of authors such as St. Francis of Assisi or Jacopone de Todi. S/U or letter grading.

**215A. Studies in 15th-Century Literature: Variable Topics (4)** Lecture, three hours. Variable-content seminar on themes and issues of 15th-century literature, with coverage of authors such as Pulci or Poliziano. S/U or letter grading.

**215B. Studies in 15th-Century Literature: Age of Lorenzo de' Medici and Poliziano (4)** Lecture, three hours. S/U or letter grading.

**216A. Studies in the Renaissance: Machiavelli and Renaissance Political Thought (4)** Lecture, three hours. S/U or letter grading.

**216B. Studies in the Renaissance: Ariosto and Renaissance Epic (4)** Lecture, three hours. S/U or letter grading.

**216C. Studies in the Renaissance: Tasso (4)** Lecture, three hours. S/U or letter grading.

**216D. Studies in the Renaissance: Renaissance Theater (4)** Lecture, three hours. S/U or letter grading.

**216E. Studies in the Renaissance: Variable Topics (4)** Lecture, three hours. Variable-content seminar on themes and issues of Renaissance literature, with coverage of authors such as Vasari, Leonardo, or Benvenuto. S/U or letter grading.

**217. Studies in 17th-Century Literature (4)** Lecture, three hours. Topics include Galileo and birth of scientific prose, Giordano Bruno, Gian Battista Marino, and baroque poetry. S/U or letter grading.

**218A. Studies in 18th-Century Literature: Vico (4)** Lecture, three hours. S/U or letter grading.

**218B. Studies in 18th-Century Literature: Alfieri (4)** Lecture, three hours. S/U or letter grading.

**218C. Studies in 18th-Century Literature: Goldoni (4)** Lecture, three hours. S/U or letter grading.

**218D. Studies in 18th-Century Literature: Variable Topics (4)** Lecture, three hours. Variable-content seminar on themes and issues of 18th-century literature, with coverage of authors such as Vico or Ludovico. S/U or letter grading.

**219A. Studies in 19th-Century Literature: Foscolo (4)** Lecture, three hours. S/U or letter grading.

**219B. Studies in 19th-Century Literature: Leopardi (4)** Lecture, three hours. S/U or letter grading.

**219C. Studies in 19th-Century Literature: Manzoni (4)** Lecture, three hours. S/U or letter grading.

**219D. Studies in 19th-Century Literature: Variable Topics (4)** Lecture, three hours. Variable-content seminar on themes and issues of 19th-century literature, with coverage of authors such as Carducci, Tommaseo, or Nievo. S/U or letter grading.

**220. Studies in Turn-of-the-Century Literature (4)** Lecture, three hours. Topics include Verga and Verismo, poetry, prose, and theater of D'Annunzio, and poetry of Carducci and Pascoli. S/U or letter grading.

**221A. Studies in 20th-Century Literature: Variable Topics (4)** Lecture, three hours. Variable-content seminar on themes and issues of 20th-century literature, with coverage of authors such as D'Annunzio, Verga, Marinetti, and Pirandello. S/U or letter grading.

**221B. Studies in 20th-Century Literature: Contemporary Poetry (4)** Lecture, three hours. Analysis of legacy of two major figures in Italian poetry from World War II—Ungaretti and Montale. Thorough examination of movements and individual poets active in the 1960s and 1970s. S/U or letter grading.

**221C. Studies in 20th-Century Literature: 20th-Century Narrative to World War II (4)** Lecture, three hours. Assessment of turn-of-the-century narrative pattern (Gabriele D'Annunzio) and analysis of radical innovations brought about by such towering figures as Pirandello, Svevo, Bernani, Marinetti, etc. S/U or letter grading.

**221D. Studies in 20th-Century Literature: 20th-Century Narrative since World War II (4)** Lecture, three hours. In-depth exploration of some major works that have made contemporary Italian literature famous throughout the world, with special emphasis on study of formalistic modes adopted by the neo-avant-garde. S/U or letter grading.

**221E. Studies in 20th-Century Literature: Pirandello and Contemporary Theater (4)** Lecture, three hours. Thorough reading of theatrical texts, accompanied by analysis of how the plays have been realized on stage by important directors such as Strehler, Ronconi, and the playwrights/actors themselves. Emphasis on ritualistic implications of the theatrical performance. S/U or letter grading.

**241. Seminar: Political Geography of Italy (4)** (Same as Geography M292.) Seminar, three hours; reading period, two hours. Themes in political geography with particular emphasis on Italy. May be repeated for credit. S/U or letter grading.

**260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature (4)** Lecture, three hours. Open to undergraduate students with consent of instructor. Conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across range of texts, some selected from literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama). S/U or letter grading.

**260B. Women in Italian Culture (4)** Lecture, three hours. Designed for graduate students. Conditions of women within Italian society, with concentration on specific works produced by women and/or representing women's conditions in either medieval/Renaissance or contemporary time. S/U or letter grading.

**260C. Studies in Italian Cinema (4)** Lecture, three hours. Designed for graduate students. Italian cinema compared with other European countries' and Hollywood's cinema, with focus on its development from its origins through Fascist times to neorealism, its legacy, different genres, and contemporary scene. S/U or letter grading.

**298. Variable Topics in Italian Studies (4)** Lecture, three hours; discussion, one hour. Prerequisite: graduate standing or consent of instructor. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental graduate Courses

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Studies (2 to 12)** May be repeated twice for credit. S/U grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** S/U grading.

**599. PhD Research and Writing (2 to 12)** May be repeated. S/U grading.

## Scandinavian Courses

### Lower Division

**1. Elementary Swedish (4)** Discussion, four hours. P/NP or letter grading.

**2. Elementary Swedish (4)** Discussion, four hours. Enforced requisite: course 1. P/NP or letter grading.

**3. Elementary Swedish (4)** Discussion, four hours. Enforced requisite: course 2. P/NP or letter grading.

**4. Intermediate Swedish (4)** (Formerly numbered 105A.) Lecture, three hours. Requisite: course 3. Readings, composition, and conversation in Swedish. P/NP or letter grading.

**5. Intermediate Swedish (4)** (Formerly numbered 105B.) Lecture, three hours. Requisite: course 4. Readings, composition, and conversation in Swedish. P/NP or letter grading.

**6. Intermediate Swedish (4)** (Formerly numbered 105C.) Lecture, three hours. Requisite: course 5. Readings, composition, and conversation in Swedish. P/NP or letter grading.

**11. Elementary Norwegian (4)** Discussion, four hours. P/NP or letter grading.

**12. Elementary Norwegian (4)** Discussion, four hours. Enforced requisite: course 11. P/NP or letter grading.

**13. Elementary Norwegian (4)** Discussion, four hours. Enforced requisite: course 12. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**40. Heroic Journey in Northern Myth, Legend, and Epic (5)** Lecture, three hours. Not open for credit to students with credit for course 40W. All readings in English. Comparison of journeys of heroes. Readings in Nordic mythology, legend, folktale, and epic. Cultural and historic backgrounds to texts. P/NP or letter grading.

**40W. Heroic Journey in Northern Myth, Legend, and Epic (5)** Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3. Not open for credit to students with credit for course 40. All readings in English. Comparison of journeys of heroes. Readings in Nordic mythology, legend, folktale, and epic. Cultural and historic backgrounds to texts. Satisfies Writing II requirement. Letter grading.

**50. Introduction to Scandinavian Literatures and Cultures (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50W. Designed for students in general and for those wishing to prepare for more advanced and specialized studies in Scandinavian literature and culture. Selected works from literatures of Denmark, Norway, Sweden, Iceland, and Finland, ranging from myth, national epic, saga, and folktale through modern novel, poem, play, short story, and film, read in English and critically discussed. P/NP or letter grading.

**50W. Introduction to Scandinavian Literatures and Cultures (5)** Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 50. Designed for students in general and for those wishing to prepare for more advanced and specialized studies in Scandinavian literature and culture. Selected works from literatures of Denmark, Norway, Sweden,

Iceland, and Finland, ranging from myth, national epic, saga, and folktale through modern novel, poem, play, short story, and film, read in English and critically discussed. Satisfies Writing II requirement. Letter grading.

**60. Introduction to Nordic Cinema (5)** Lecture, three hours. Not open to students with credit for course 60W. Broad introductory overview of cinematic traditions of Nordic countries. Survey of wide range of films to become familiar with several significant threads running throughout history of Nordic film, while simultaneously building necessary tools with which to write effectively about film narrative. Offers historical and theoretical framework for understanding Nordic cinema by reading several relevant texts touching on issues such as globalization, immigration, Dogme 95, and feminist film theory. P/NP or letter grading.

**60W. Introduction to Nordic Cinema (5)** Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Not open for credit to students with credit for course 60. Introduction to cinematic traditions of Nordic countries, with emphasis on construction of other or outsider as conceptual category. Survey of wide range of films to interrogate relationship between various forms of minority discourse and dominant values, institutions, and mechanisms and instruments of social control. Investigation of how these cinematic narratives of dominant normativity and diversity reflect cultural anxieties surrounding identity, ideology, collective memory, and power relationships. Screenings supplemented with relevant theoretical texts to give tools necessary to more effectively contextualize and analyze images. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**C131. Introduction to Viking Age (4)** Lecture, three hours. History, society, and culture of early Scandinavians. All texts in English, including readings in Old Norse sagas and Eddas. Concurrently scheduled with course C231. Letter grading.

**C133A. Saga (4)** Seminar, three hours. Sagas are largest extant medieval prose literature. Texts in English, with selections from different types of Icelandic sagas. Consideration of history and society that produced these narratives. Concurrently scheduled with course C233A. Letter grading.

**133C. Social Network Analysis and Icelandic Family Saga (4)** Seminar, three hours. Exploration of how character interactions can be used as basis for developing social network view of stage on which saga action plays out. Examination of how best to model sagas as dynamic social networks and learn about metrics and analytical approaches from social network analysis (SNA) that deepen understanding of saga actions. SNA provides additional opportunity to explore hypothetical situations and recognize alternative social pathways that may have led to other types of community formations. Study of Icelandic saga toward increasing complexity, developing understanding of characters and character roles, and using this as basis of preliminary investigations. P/NP or letter grading.

**134. Scandinavian Mythology (4)** Seminar, three hours. Overview of major gods and goddesses, heroes and heroines, narratives and adventures that make up lore collectively referred to as Scandinavian, or Norse, myth. Reading and examination of this lore that is chiefly preserved in two collections traditionally called Poetic (or Elder) Edda and Prose (or Younger) Edda. P/NP or letter grading.

**C137. Old Norse Literature and Society (4)** Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C237. Letter grading.

**138. Vikings (5)** Lecture, three hours. Survey of history, anthropology, and archaeology of Scandinavian societies in Viking Age. Consideration of impact of Vikings on Europe and beyond, and depiction of Vikings in sagas and other post-Viking-Age sources. Readings draw on medieval texts and secondary material. P/NP or letter grading.

**C141A. Theory of Scandinavian Novel (4)** Seminar, three hours. Analysis of predominant structures of Scandinavian novel from its 18th-century beginnings through its rise in 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to novels. May be concurrently scheduled with course C241A. P/NP or letter grading.

**141C. Short Story in Scandinavia (4)** Seminar, three hours. Exploration of range of classic short story and novella texts from Scandinavian literary canon, with stories by authors such as Hans Christian Andersen, Jens Peter Jacobsen, Alexander Kielland, Amalie Skram, Sigbjørn Obstfelder, Knut Hamsun, Isak Dinesen, and Rubén Palma. Examination of authors' lives and oeuvres, larger Nordic/European literary movements of 19th and 20th centuries, and tropes and conventions of short stories themselves. P/NP or letter grading.

**142A. Introduction to Nordic Theater and Drama (4)** Lecture, three hours. Examination of artistic legacy of Henrik Ibsen and August Strindberg in context of emergence of modern Nordic theater and drama as whole, as well as important contributions of their contemporaries and successors. Readings include plays, letters, speeches, and memoirs by Ludvig Holberg, Henrik Ibsen, August Strindberg, Pär Lagerkvist, Kjeld Abell, Eeva-Liisa Manner, Hrafnhildur Hagalín Gudmundsdóttir, and Jonas Hassen Khemiri. P/NP or letter grading.

**143A. Scandinavian Detective Fiction (4)** Seminar, three hours. Scandinavian authors have been writing detective fiction for years. Maj Sjöwall and Per Wahlöö were famous worldwide in 1960s and 1970s, especially with their Martin Beck series, and once they had established that Scandinavian writers could be successfully translated into many languages, others followed. Scandinavian authors, while following traditional rules of crime fiction, also analyze and often criticize values and cultures of their societies. Reading of these works as representations of critical social and intellectual problems not only in Scandinavia, but in Europe and world at large. P/NP or letter grading.

**143C. Scandinavian Crime Literature (4)** Seminar, three hours. Introduction to background of crime fiction and its relation to Scandinavia. P/NP or letter grading.

**C145A. Henrik Ibsen (4)** Seminar, three hours. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C245A. P/NP or letter grading.

**C145B. Knut Hamsun (4)** Seminar, three hours. Readings and discussion of selected works by Knut Hamsun and other 19th- and 20th-century Scandinavian writers who explored theme of nature as modern idyll. May be concurrently scheduled with course C245B. P/NP or letter grading.

**C146A. August Strindberg (4)** Seminar, three hours. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of so-called battle of sexes. His work, as well as its literary transformations, placed into Scandinavian, European, and feminist context. May be concurrently scheduled with course C246A. P/NP or letter grading.

**147A. Hans Christian Andersen (4)** Lecture, two hours; discussion, one hour. Study of works of Hans Christian Andersen, Danish novelist, dramatist, and writer of tales, including consideration of his literary background and of his times. Analysis of his works in terms of their structure, style, and meaning. P/NP or letter grading.

**C147B. Søren Kierkegaard (4)** Seminar, three hours. Readings and discussion of selected works by Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C247B. P/NP or letter grading.

**147C. Karen Blixen (4)** Lecture, three hours. Investigation of life, work, writings, and legacy of Danish author Karen Blixen, also known in the English-speaking world as Isak Dinesen. Focus on literary and philosophical paradoxes personified and articulated by enigmatic, controversial, and widely acclaimed Dinesen. Using memoirs, short fiction, and essays by Dinesen, interrogation of aesthetic theory, historiography and biography, feminist theory, postmodern and transcolonial theory, and identity. Secondary readings include texts by Bhabha, Gilbert and Gubar, JanMohamed, Kierkegaard, Nietzsche, Ngugi, Said, and Thurman. P/NP or letter grading.

**154. Romanticism (4)** Seminar, three hours. Exploration of Romanticism in Scandinavian literature. Reading and discussion of different approaches to Romanticism and analysis of works of prominent Scandinavian writers from Romantic period to understand Scandinavian Romanticism in larger European context, including work from both English and German Romantic writers and artists. P/NP or letter grading.

**C155. Modern Breakthrough (4)** (Formerly numbered 155.) Seminar, three hours. Readings and discussions of selected works of realism, naturalism, and symbolism in late 19th-century Scandinavian literature and art. Concurrently offered with course C255. P/NP or letter grading.

**156. Scandinavian Literature of 20th Century (4)** Seminar, three hours. Readings and discussion of selected works of modern Scandinavian literature from beginning of century to present. P/NP or letter grading.

**157. Contemporary Nordic Literature (4)** Seminar, three hours. Reading and analysis of selected texts by major 20th-century Swedish authors. P/NP or letter grading.

**161. Introduction to Nordic Cinema (4)** Seminar, three hours. Designed for students in general and for those preparing for more advanced studies in Scandinavian literature and culture. Viewing and discussion of films by Ingmar Bergman and other Scandinavians. P/NP or letter grading.

**C163A. Introduction to Danish Cinema (4)** Seminar, three hours. Introduction to history of cinema in Denmark, as well as to some fundamental concepts in study of film. Deliberately broad and historically centered approach to development of cinema in Denmark rather than focus on films of particular directors or topics. Theoretical readings from important critics, including Kracauer, Bazin, Metz, and Chatman, along with several directed exercises, to develop vocabulary and critical method for discussing films in general and Danish cinema in particular. Other readings include selections from Hjort, Sandberg, Tangherlini, and other Scandinavian theorists. Concurrently scheduled with course C263A. P/NP or letter grading.

**C163B. Introduction to Swedish Cinema (4)** Lecture, three hours. Introduction to and exploration of history of Swedish cinema from silent era to present. Filmmakers include auteurs in international canon, such as Victor Sjöström, Mauritz Stiller, and Ingmar Bergman, as well as other key Swedish filmmakers such as Gustaf Molander, Alf Sjöberg, Mai Zetterling, Vilgot Sjöman, Jan Troell, Lukas Moodysson, and Josef Fares. Development of Scandinavian high art cinema and popular genres such as rural romanticism, melodrama, sex, crime, and horror. All films have English subtitles. Concurrently scheduled with course C263B. P/NP or letter grading.

**C163C. Introduction to Norwegian Cinema (4)** Seminar, three hours. Introduction to and exploration of history of Norwegian cinema from silent era to present. Filmmakers include Tancred Ibsen, Arne Skouen, Edith Carlmar, Nils Gaup, Erik Skjoldbjærg, Bent Hamer, Khalid Hussain, and Petter Næss. Particular focus on popular genres such as war films, horror, noir, romantic comedies, and documentaries. Concurrently scheduled with course C263C. P/NP or letter grading.

**165B. Vikings on Film (4)** Seminar, three hours. Exploration of representations of Vikings in medium of film, considering Viking films within their historic and cultural contexts. How does representation of Vikings on film correspond to historical reality of Vikings? What have Vikings come to signify in modern era and why? Do we see development in idea of Vikings over time that is reflected in films from different periods? How do representations of Vikings in films produced in Scandinavia differ from their representations in films from other cultures? How do we see changing ideas about gender, ethnicity, dis/ability, sexual preference, and other aspects of identity reflected in Viking films? Development of critical thinking and close textual analysis skills. All readings and films in English or with English subtitles. P/NP or letter grading.

**C166A. Ingmar Bergman (4)** Seminar, three hours. Exploration of Ingmar Bergman's development as film artist through various periods, spanning mid-1940s and late 1970s. Contextualization of work of this most personal of filmmakers within multiple frameworks of postwar Swedish film industry, international art cinema movement, and issues of auteur filmmaking. Course readings and viewing of 10 Bergman films. All films have English subtitles. Concurrently scheduled with course C266A. P/NP or letter grading.

**C166C. Carl Dreyer (4)** Seminar, three hours. Carl Theodor Dreyer (1889 to 1968) is not only one of great masters of Nordic cinema, but of world cinema as well. Focus on films that Dreyer made during near half century between 1919 and 1964. Contextualization of silent and sound works of this most personal of filmmakers within multiple frameworks: Danish national film industry, transnational European cinema, and issues of auteur filmmaking. Writings by key Dreyer scholars such as David Bordwell, Ray Carney, Paul Schrader, Mark Sandberg, and others, as well as Dreyer's own writings on cinema. All films have English intertitles or subtitles. Concurrently scheduled with course C266C. P/NP or letter grading.

**C171. Introduction to Scandinavian Folklore (4)** Seminar, three hours. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies that strive to answer question why do people tell stories that they tell? Concurrently scheduled with course C271. Letter grading.

**172A. Nordic Folk and Fairy Tales (4)** Seminar, three hours. Exploration of Nordic version of classic tale-types such as Dragon Slayer, Cinderella, Hansel and Gretel, and King Lindorm in historic and cultural contexts. Reading of im-

portant works of Nordic and international folktale scholarship, representing historical-geographic, structuralist, psychological, feminist, disability-theory, and queer-theory approaches. Development of critical thinking and close textual analysis skills, and understanding and appreciation of genre that continues to pervade popular culture. Readings in English translation. P/NP or letter grading.

**173A. Popular Culture in Scandinavia (4)** Seminar, three hours. Examination of popular culture in Scandinavia through study of contemporary Scandinavian literature, film, music, and art. Investigation of how issues such as globalization, immigration, and nationalism are portrayed in popular culture in Denmark, Norway, Sweden, Finland, and Iceland. Discussion of how and why human condition is interpreted through study of cultural expressions and how it is possible—taking literature, film, and art as point of departure—to analyze cultural, historical, and political expression in given piece of art. P/NP or letter grading.

**C174A. Minority Cultures in Scandinavia (4)** Seminar, three hours. Exploration of emergence of immigrant cultures in Nordic region. Beginning in 1960s, large numbers of people from Turkey, Italy, and Pakistan began immigrating to Nordic countries, followed in subsequent decades by immigrants and refugees from Vietnam, India, Iran, Iraq, Afghanistan, Cambodia, and countries throughout Africa. Cultural landscape previously marked by relatively high degree of cultural homogeneity now characterized by broad cultural diversity. Examination of emergence of new voices in Nordic cultural landscape in wide range of cultural expressive media, including literature, film, and visual and performing arts. Exploration of emergence of new forms of Nordic languages, such as well-documented phenomenon of Rinkeby Swedish. Concurrently scheduled with course C274A. P/NP or letter grading.

**174B. Queer Scandinavia (4)** Seminar, three hours. Queer themes in Scandinavian literature, mainly from 19th and 20th centuries. Scandinavian countries have had more progressive view on homosexuality than most other countries, and Scandinavian writers portrayed homosexuality in explicit and radical ways as early as turn of 19th century. Introduction to key theoretical works within field of gay and lesbian studies and queer studies, as well as presentation of historical view of how homosexuality has been perceived in Western world over time. P/NP or letter grading.

**C180. Literature and Scandinavian Society (4)** Seminar, three hours. Discussion of selected aspects of Scandinavian society based on readings of contemporary literature as well as historical and/or sociological material. May be repeated for credit (as determined by undergraduate adviser) with topic change. May be concurrently scheduled with course C280. P/NP or letter grading.

**C185. Seminar: Scandinavian Literature (4)** Seminar, three hours. Selected topics in Scandinavian prose, poetry, and drama. May be repeated for credit with consent of instructor and undergraduate adviser. May be concurrently scheduled with course C265. P/NP or letter grading.

**187FL. Special Studies: Readings in Scandinavian (2)** Seminar, two hours. Requisite: course 105B or 106B or 107B. Students must be concurrently enrolled in affiliated main course. Additional work in Nordic languages (Danish, Icelandic, Norwegian, Swedish) to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in ScandinaviaN. (2 to 4)** Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Scandinavian (4)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**C231. Introduction to Viking Age (4)** Lecture, three hours. History, society, and culture of early Scandinavians. All texts in English, including readings in Old Norse sagas and Eddas. Concurrently scheduled with course C131. Graduate students do additional readings and write more extensive research papers. Letter grading.

**C233A. Saga (4)** Seminar, three hours. Sagas are largest extant medieval prose literature. Texts in English, with selections from different types of Icelandic sagas. Consideration of history and society that produced these narratives. Concurrently scheduled with course C133A. Graduate students do additional readings and write more extensive research papers. Letter grading.

**233B. Advanced Old Norse Prose (4)** Lecture, three hours. Requisite: course 132B. Readings of major saga texts. Also, secondary sources that bear on specific issues in Old Norse literature and medieval Scandinavian history. S/U or letter grading.

**234. Scandinavian Mythology (4)** Seminar, three hours. Study of Northern myth and religion through close reading of Eddic texts and secondary sources. Letter grading.

**235A. Advanced Old Norse Poetry (4)** Lecture, three hours. Requisite: course 132B. Readings of mythological and heroic poems from Poetic Edda. Secondary sources used where appropriate. S/U or letter grading.

**C237. Old Norse Literature and Society (4)** Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C137. Graduate students do additional readings and write more extensive research papers. Letter grading.

**C241A. Theory of Scandinavian Novel (4)** Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Analysis of predominant structures of Scandinavian novel from its 18th-century beginnings through its rise in 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to novels. May be concurrently scheduled with course C141A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C245A. Henrik Ibsen (4)** Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C145A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C245B. Knut Hamsun (4)** Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Readings and discussion of selected works by Knut Hamsun and other 19th- and 20th-century Scandinavian writers who explored theme of nature as modern idyll. May be concurrently scheduled with course C145B. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C246A. August Strindberg (4)** Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of so-called battle of sexes. His work, as well as its literary transformations, placed into Scandinavian, European, and feminist context. May be concurrently scheduled with course C146A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

**C247B. Søren Kierkegaard (4)** Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Readings and discussion of selected works of Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C147B. S/U or letter grading.

**C255. Modern Breakthrough (4)** Seminar, three hours. Readings and discussions of selected works of realism, naturalism, and symbolism in late 19th-century Scandinavian literature and art. Concurrently offered with course C155. S/U or letter grading.

**C263A. Introduction to Danish Cinema (4)** Seminar, three hours. Introduction to history of cinema in Denmark, as well as to some fundamental concepts in study of film. Deliberately broad and historically centered approach to development of cinema in Denmark rather than focus on films of particular directors or topics. Theoretical readings from important critics, including Kracauer, Bazin, Metz, and Chatman, along with several directed exercises, to develop vocabulary and critical method for discussing films in general and Danish cinema in particular. Other readings include selections from Hjort, Sandberg, Tangherlini, and other Scandinavian theorists. Concurrently scheduled with course C163A. S/U or letter grading.

**C263B. Introduction to Swedish Cinema (4)** Lecture, three hours. Introduction to and exploration of history of Swedish cinema from silent era to present. Filmmakers include auteurs in international canon, such as Victor Sjöström, Mauritz Stiller, and Ingmar Bergman, as well as other key Swedish filmmakers such as Gustaf Molander, Alf Sjöberg, Mai Zetterling, Vilgot Sjöman, Jan Troell, Lukas Moodysson, and Josef Fares. Development of Scandinavian high art cinema and popular genres such as rural romanticism, melodrama, sex, crime, and horror. All films have English subtitles. Concurrently scheduled with course C163B. S/U or letter grading.

**C263C. Introduction to Norwegian Cinema (4)** Seminar, three hours. Introduction to and exploration of history of Norwegian cinema from silent era to present. Filmmakers include Tancred Ibsen, Arne Skouen, Edith Carlmar, Nils Gaup, Erik Skjoldbjærg, Bent Hamer, Khalid Hussain, and Petter Næss. Particular focus on popular genres such as war films, horror, noir, romantic comedies, and documentaries. Concurrently scheduled with course C163C. S/U or letter grading.

**C265. Seminar: Scandinavian Literature (4)** Seminar, three hours. Preparation: reading knowledge of a Scandinavian language. Selected topics in Scandinavian prose, poetry, and drama. May be repeated for credit with consent of instructor and graduate adviser. May be concurrently scheduled with course C185. S/U or letter grading.

**C266A. Ingmar Bergman (4)** Seminar, three hours. Exploration of Ingmar Bergman's development as film artist through various periods, spanning mid-1940s and late 1970s. Contextualization of work of this most personal of filmmakers within multiple frameworks of postwar Swedish film industry, international art cinema movement, and issues of auteur filmmaking. Course readings and viewing of 10 Bergman films. All films have English subtitles. Concurrently scheduled with course C166A. S/U or letter grading.

**C266C. Carl Dreyer (4)** Seminar, three hours. Carl Theodor Dreyer (1889 to 1968) is not only one of great masters of Nordic cinema, but of world cinema as well. Focus on films that Dreyer made during near half century between 1919 and 1964. Contextualization of silent and sound works of this most personal of filmmakers within multiple frameworks: Danish national film industry, transnational European cinema, and issues of auteur filmmaking. Writings by key Dreyer scholars such as David Bordwell, Ray Carney, Paul Schrader, Mark Sandberg, and others, as well as Dreyer's own writings on cinema. All films have English intertitles or subtitles. Concurrently scheduled with course C166C. S/U or letter grading.

**271. Study of Oral Tradition: History and Methods (4)** (Same as English M205A.) Seminar, three hours. Exploration of scholarly and literary attempts to study, define, analyze, promote, and/or appropriate oral traditions, from Homer and ancient Greece to origins of vernacular literatures, European romantic (re)discovery of oral tradition, 20th-century heuristic models of oral composition, and modern-day electronic media and popular verbal genres, such as joking and rapping. S/U or letter grading.

**C271. Introduction to Scandinavian Folklore (4)** Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies that strive to answer question why do people tell stories that they tell? Concurrently scheduled with course C171. Letter grading.

**273. Studies in Oral Traditional Genres (4)** (Same as English M205C.) Seminar, three hours. Exploration in depth of variety and history of, and scholarship on, a particular oral traditional genre (e.g., ballad, song, epic, proverb, riddle, folktale, legend) or a set of closely related oral traditional genres. S/U or letter grading.

**C274A. Minority Cultures in Scandinavia (4)** Seminar, three hours. Exploration of emergence of immigrant cultures in Nordic region. Beginning in 1960s, large numbers of people from Turkey, Italy, and Pakistan began immigrating to Nordic countries, followed in subsequent decades by immigrants and refugees from Vietnam, India, Iran, Iraq, Afghanistan, Cambodia, and countries throughout Africa. Cultural landscape previously marked by relatively high de-

gree of cultural homogeneity now characterized by broad cultural diversity. Examination of emergence of new voices in Nordic cultural landscape in wide range of cultural expressive media, including literature, film, and visual and performing arts. Exploration of emergence of new forms of Nordic languages, such as well-documented phenomenon of Rinkeby Swedish. Concurrently scheduled with course C174A. S/U or letter grading.

**C280. Literature and Scandinavian Society (4)** Seminar, three hours. Designed for graduate students. Discussion of selected aspects of Scandinavian society based on readings of contemporary literature as well as historical and/or sociological material. May be repeated for credit (as determined by graduate adviser) with topic change. May be concurrently scheduled with course C180. Graduate students may meet for extra seminar hours and write research papers of greater length and depth. S/U or letter grading.

**596. Directed Individual Study or Research (2 to 6)** Tutorial, to be arranged with faculty member who directs the study or research. Limited to graduate Scandinavian students. Twelve units may be applied toward total course requirement, but only 4 units may be applied toward minimum graduate course requirement. May be repeated twice. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (4 to 8)** Tutorial, to be arranged with faculty member who directs the study or research. May be repeated once. May not be applied toward MA minimum course requirements. S/U grading.

**599. Research for and Preparation of PhD Dissertation (4 to 8)** Tutorial, to be arranged with faculty member who directs the study or research. May be repeated. S/U grading.

## Yiddish Courses

### Lower Division

**10. From Old World to New: Becoming Modern as Reflected in Yiddish Cinema and Literature (5)** Lecture, three hours; discussion, one hour. Use of media of Yiddish cinema (classic films and documentaries) as primary focal points to examine ways in which one heritage culture, that of Ashkenazic Jews, adapted to forces of modernity (urbanization, immigration, radical social movements, assimilation, and destructive organized anti-Semitism) from late-19th century to present. Exploration of transformational themes in depth through viewing of selected films, readings, research and weekly papers, and in-class discussions. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Yiddish (4)** Lecture, four hours. Introduction to grammar; instruction in listening, speaking, reading, and writing skills. P/NP or letter grading.

**101B. Elementary Yiddish (4)** Lecture, four hours. Prerequisite: course 101A. P/NP or letter grading.

**101C. Elementary Yiddish (4)** Lecture, four hours. Prerequisite: course 101B. P/NP or letter grading.

**102A. Intermediate Yiddish (4)** Lecture, three hours. Prerequisite: course 101C. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

**102B. Intermediate Yiddish (4)** Lecture, three hours. Requisite: course 102A. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

**102C. Intermediate Yiddish (4)** Lecture, three hours. Requisite: course 102B. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

**121A. 20th-Century Yiddish Poetry in English Translation (4)** Lecture, three hours. Designed for juniors/seniors. Readings in 20th-century Yiddish poetry and drama. P/NP or letter grading.

**121B. 20th-Century Yiddish Prose and Drama in English Translation (4)** Lecture, three hours. Designed for juniors/seniors. Readings in 20th-century Yiddish prose. P/NP or letter grading.

**121C. Special Topics in Yiddish Literature in English Translation (4)** Lecture, three hours. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of wide range of 19th- and 20th-century literature. P/NP or letter grading.

**130. Introduction to Yiddish Culture and Language through Film (4)** Lecture, three hours. Introduction to Yiddish language and culture, with focus on classic Yiddish films and documentaries as integral tools for accessing culture associated with this heritage language. Viewing and discussion to gain deeper understanding and appreciation of complexity and scope of Yiddish culture and in particular of annihilated Yiddish civilization of 20th century. These films represent most accessible way available to hear Yiddish spoken in fluent, natural manner. P/NP or letter grading.

**131A. Modern Yiddish Poetry (4)** Lecture, three hours. Requisite: course 102A. Readings in modern Yiddish poetry. P/NP or letter grading.

**131B. Modern Yiddish Prose and Drama (4)** Lecture, three hours. Requisite: course 102A. Readings in modern Yiddish prose and drama. P/NP or letter grading.

**131C. Special Topics in Yiddish Literature (4)** Lecture, three hours. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of wide range of 19th- and 20th-century literature. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Yiddish. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study or more specialized investigation of topics in Yiddish, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**596. Directed Individual Study or Research in Yiddish (4)** Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for ID number). May be repeated once. S/U grading.

**597. Preparation for PhD Qualifying Examinations (4)** Tutorial, to be arranged with faculty member who directs study (see department for ID number). S/U grading.

# Family Medicine

## Family Medicine Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Family Medicine (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Fiat Lux

## Fiat Lux Course

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

# Film, Television, and Digital Media

## Film and Television Courses

### Lower Division

**1A. Freshman Symposium (1)** Laboratory, three hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Limited to Film and Television majors. Structured forum in which freshmen meet on regular basis to discuss curricular issues, meet with faculty members from department, and have exposure to array of guest speakers from media industries. Letter grading.

**1B. Freshman Symposium (1)** Laboratory, three hours. Enforced requisite: course 1A. Limited to Film and Television majors. Structured forum in which freshmen meet on regular basis to discuss curricular issues, meet with faculty members from department, and have exposure to array of guest speakers from media industries. Letter grading.

**1C. Freshman Symposium (1)** Laboratory, three hours. Enforced requisite: course 1B. Limited to Film and Television majors. Structured forum in which freshmen meet on regular basis to discuss curricular issues, meet with faculty members from department, and have exposure to array of guest speakers from media industries. Letter grading.

**4. Introduction to Art and Technique of Filmmaking (5)** Lecture, four hours; discussion, one hour. Students acquire understanding of practical and aesthetic challenges undertaken by artists and professionals in making of motion pictures and television. Examination of film as both art and industry: storytelling, sound and visual design, casting and performance, editing, finance, advertising, and distribution. Exploration of American and world cinema from filmmaker's perspective. Honing of analytical skills and development of critical vocabulary for study of filmmaking as technical, artistic, and cultural phenomenon. P/NP or letter grading.

**6A. History of American Motion Picture (6)** Lecture/screenings, six hours; discussion, one hour. Historical and critical survey, with examples, of American motion picture both as developing art form and as medium of mass communication. Letter grading.

**10A. American Television History (5)** Lecture/screenings, four hours; discussion, one hour. Critical survey of American television history from its inception to present. Examination of interrelationships between program forms, industrial paradigms, social trends, and culture. Starting with television's hybrid origins in radio, theater, and film, contextualization, viewing, and discussion of key television shows, as well as Hollywood films that comment on radio and television. Consideration of television programs and series in terms of socio-cultural issues (consumerism, lifestyle, gender, race, national identity) and industrial practice (programming, policy, regulation, business). Letter grading.

**15. Stylistic Studies for Moving Image: Theory and Practice (6)** Lecture, four hours; discussion, one hour. Enforced requisite: course 1A. Limited to Film and Television majors. Drawing heavily on wide array of historical examples, examination of many expressive strategies potentially usable in creation of moving image art forms: iconography, editing, composition, kinesthetics, sound, narrative, discourse, and performance. Letter grading.

**18. Media Parks: Cinematic and Television History of Theme Parks. (2 to 6)** Seminar, nine hours. Intensive examination and discussion of history and evolution of relationship between moving image media (film, television, and video games) and theme parks, in conjunction with site visits and screenings of related media. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**33. Introductory Screenwriting (4)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course C132/C430. Structural analysis of feature films and development of professional screenwriters' vocabulary for constructing, deconstructing, and reconstructing their own work. Screenings of films and selected film sequences in class and by assignment. P/NP or letter grading.

**34. Introduction to Television Writing (4)** Lecture, three hours; discussion, one hour. Requisite: course 33. Development of fundamental skills necessary to explore writing of original television scripts. Offers comprehensive overview of process of television writing. P/NP or letter grading.



**37. Writing for Television: Big Ideas for Small Screen. (2 to 6)** Seminar, nine hours. Intensive introduction to television pilot form, covering style and content and how to analyze television shows and industry process of television development. Students develop beat sheet and outline for first act of original pilot episode, write teaser of original pilot episode, and create series treatment. Offered in summer only. P/NP or letter grading.

**50. Introduction to Visual Culture (5)** (Same as English M50.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of how visual media, including advertising, still and moving images, and narrative films, influence contemporary aesthetics, politics, and knowledge. P/NP or letter grading.

**51. Digital Media Studies (5)** Lecture, three hours; laboratory, one hour. Introduction to history, theory, and authoring skills of digital media, art, and culture. P/NP or Letter grading.

**72. Production Practice in Film, Television, and Digital Media (2 to 4)** Lecture, three hours; laboratory, three hours. Exploration of research, analysis, and conceptualization of dramatic narrative and laboratory experience in one or more various aspects of contemporary production and postproduction practices for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 8 units. Letter grading.

**75. Lighting for Film and Television (2)** Laboratory, 10 hours. Offered as one-week intensive course. Introduction to concepts and practice of lighting for film through discussion and intensive hands-on, laboratory experience for directors of photography, camera operators, gaffers, key grips, assistant camera, and grips. Crew rotation changes per camera setup. Review of dailies. Offered in summer only. Letter grading.

**84A. Overview of Contemporary Film Industry (4)** Lecture, three hours; discussion, one hour. Examination of evolving economic structures and business practices in contemporary Hollywood film industry, with emphasis on operations of studios and independent distribution companies, their development, marketing, and distribution systems, and their relationship to independent producers, talent, and agencies. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101A. Junior Symposium (1)** Laboratory, three hours. Course 101A is enforced requisite to 101B, which is enforced requisite to 101C. Limited to Film and Television majors. Structured forum in which juniors meet on regular basis to discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film industry. Letter grading.

**102A. Senior Symposium (1)** Laboratory, three hours. Enforced requisite: course 101A. Course 102A is enforced requisite to 102B, which is enforced requisite to 102C. Limited to Film and Television majors. Structured forum in which seniors meet on regular basis to discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film and television industry. Letter grading.

**102B. Senior Symposium (1)** Laboratory, three hours. Enforced requisite: course 102A. Limited to Film and Television majors. Structured forum in which seniors meet on regular basis to discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film and television industry. Letter grading.

**102C. Senior Symposium (1)** Laboratory, three hours. Enforced requisite: course 102B. Limited to Film and Television majors. Structured forum in which seniors meet on regular basis to discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film and television industry. Letter grading.

**104. Film and Television Symposium. (1, 2)** Laboratory, three hours. Structured forum in which students discuss curricular issues, meet with faculty members, and have exposure to array of guest speakers from within film industry. May be repeated three times for credit. Offered in summer only. Letter grading.

**106B. History of European Motion Picture (6)** Lecture/screenings, six hours; discussion, one hour. Historical and critical survey, with examples, of European motion picture both as developing art form and as medium of mass communication. Letter grading.

**106C. History of African, Asian, and Latin American Film (6)** Lecture/screenings, six hours; discussion, one hour. Critical, historical, aesthetic, and social study—together with exploration of ethnic significance—of Asian, African, Latin American, and Mexican films. Letter grading.

**107. Experimental Film (6)** Lecture/screenings, six hours; discussion, one hour. Study and analysis of unconventional developments in motion pictures. P/NP or letter grading.

**108. History of Documentary Film (6)** Lecture/screenings, six hours; discussion, one hour. Philosophy of documentary approach in motion pictures. Development of critical standards and examination of techniques of teaching and persuasion used in selected documentary, educational, and propaganda films. Letter grading.

**109. Advanced Topics in Documentary: New Documentary Forms (4)** Lecture, three hours; discussion, one hour; screenings, three hours. Examination of today's documentary modes of representation and genres focusing on rise and diversification of nonfiction modes since new millennium. From short form to series based, virtual reality to interactive, crowd sourced to animated, study of new documentary forms and platforms as situated within complex media environment. Exploration of theoretical models through which documentaries can be understood, questioned, and critically approached. Letter grading.

**111. Women and Film (6)** (Same as Gender Studies M111.) Lecture, eight hours; discussion, one hour. Historical issues and critical approaches to women and cinema that may include authorship, stardom, female genres, and images of women in Hollywood cinema, alternative cinema, and independent cinema from silent era to present. Letter grading.

**112. Film and Social Change (6)** Lecture/screenings, six hours; discussion, one hour. Development of documentary and dramatic films in relation to and as force in social development. Letter grading.

**113. Film Authors (5)** Lecture/screenings, four hours; discussion, one hour. In-depth study of specific film author (director or writer). May be repeated for credit with topic change. P/NP or letter grading.

**114. Film Genres (5)** Lecture/screenings, four hours; discussion, one hour. Study of specific film genre (e.g., Western, gangster cycle, musical, silent epic, comedy, social drama). May be repeated for credit with topic change. P/NP or letter grading.

**117. Chicanos in Film/Video (5)** (Same as Chicana/o and Central American Studies M114.) Lecture/screenings, five hours; discussion, one hour. Goal is to gain nuanced understanding of Chicano cinema as political, socioeconomic, cultural, and aesthetic practice. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres—silent greaser films, social problem films, Westerns, and gang films—that are major genres that account for films about or with Mexican Americans produced between 1908 and 1980. Examination of recent Chicano-produced films that subvert or signify on these Hollywood genres, including *Zoot Suit*, *Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques Hollywood image of Chicanos. Guest speakers include both pioneer and up-and-coming filmmakers. P/NP or letter grading.

**C118. Intermediate Cinematography (4)** Lecture, two hours; laboratory, four hours. Enforced requisite: course 101A. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. Concurrently scheduled with course C416. Letter grading.

**C120. Digital Cinematography (4)** Lecture, three hours. Requisites: courses 100A, 185. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. Concurrently scheduled with course C420. Letter grading.

**122D. Film Editing: Overview of History, Technique, and Practice (4)** Lecture, three hours. Exploration of film editing techniques, how they have evolved, and continue to evolve. Examination of history of editing, as well as current editing trends, terminology, and workflow. P/NP or letter grading.

**122E. Digital Cinematography (4)** Lecture, three hours. With lectures, screenings, and demonstrations, study of principles of digital cinematography. How tools and techniques affect visual storytelling process. Topics include formats, aspect ratios, cameras, lenses, special effects, internal menu picture manipulation, lighting, composition, coverage, high definition, digital exhibition, filtration, multiple-camera shooting. P/NP or letter grading.

**122I. Writing for Animation Series (5)** Lecture, three hours. Introduction to craft and business of writing animation for television. Overview of history of animation produced specifically for this medium, along with its many formats.

Business model has changed radically over past five decades, as have types of shows that have been created. Designed to put shows in historical perspective, with eye toward where industry is heading given changes in technology and continuing (and growing) scrutiny of outside forces such as corporations and FCC. Letter grading.

**122J. Disney Feature: Then and Now (5)** Lecture, three hours; discussion, three hours. Study and analysis of Disney's animated features. Evaluation of why Disney's animated features have dominated until recently and ramifications of this dominance on animation and society. Letter grading.

**122M. Film and Television Directing (4)** Lecture, three hours. Through discussions, screenings, demonstrations, and guests, exploration of script, previsualization, directing actors, directing camera coverage in relationship to story, practical on-set directing, and directing for camera. P/NP or letter grading.

**122N. History of Animation in American Film and Television (5)** Lecture, six hours. Survey of art of animation in America from its precinema origins to recent films of Disney, Pixar, DreamWorks, Ghibli, and others. Place of animation in pop culture, racial imagery and ethnic stereotypes, growth of art form, and how it reflects American society. P/NP or letter grading.

**124. Sex, Race, and Difference in Transnational Film (6)** (Same as Gender Studies M124.) Lecture, three hours; discussion, one hour. Drawing on feminist media studies, training of students in media literacy so they acquire necessary skills to critically interrogate film as medium of communication and to appreciate how film provides lens to examine some of most critical issues of our time. Development of understanding of transnationality to examine how circulations of capital, labor, and commodities transect, render problematic, and sometimes reinforce national borders. Examination of role of film in both exemplifying and representing these conditions of transnationality. How films enable understanding of historical and contemporary relationships between mobility, coercion, and migration; colonialism and settler colonialism; Orientalism, geopolitics, and sexuality; cultural identity and diaspora; transnational conceptions of sexual desire and embodiment; immigration and religious difference; and criminalization of racial difference. P/NP or letter grading.

**126. Acting for Film and Television (4)** Studio, six hours. Projects in acting for television, video, and film. May be repeated twice for credit. P/NP or letter grading.

**128. Media and Ethnicity (4)** Lecture, three hours. Utilizing Asian American experience, exploration of impact and uses of media on contemporary American ethnic communities. Role and techniques of media influence besides community utilization and production. P/NP or letter grading.

**CM129. Contemporary Topics in Theater, Film, and Television (2)** (Same as Theater CM129.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM229. P/NP or letter grading.

**130. Introduction to Speculative Television Writing (4)** Lecture, three hours. Exploration of basic structural rules of television, developing characters, and developing basic command of tone through studying existing television series and then crafting scenes for those existing television series. P/NP or letter grading.

**131. Introduction to Television Writing. (6, 8)** Lecture, three hours. Introduction to television pilot form, covering style and content, as well as principles behind network needs and how pilots are chosen across broadcast, cable, and digital platforms. Students write series outline and first act of original pilot. Offered in summer only. Letter grading.

**132. Television Writing Workshop (6)** Laboratory, three hours. Students outline first 10 pages of pilot for original one-hour drama or dramedy, or half-hour comedy series. Examination of topics such as pitching; television writing format and structure 101; current trends in television writing; how to write compelling characters and stories; and how to take idea from concept through logline, beat sheet, and outline to final professional first draft. Letter grading.

**133A. Intermediate Television Writing Variety/Sketch Comedy (8)** Lecture, three hours. Recommended prerequisite: course 131. Examination of writing for sketch, talk, and other hybrid comedic television shows. Review of various types of parody including monologues, commercial parodies, slice-of-life comedy, character-driven comedy, physical comedy, comedy of absurd, and political and topical satire. Students write one comedy sketch and portfolio of monologue jokes. Offered in summer only. Letter grading.

**133B. Intermediate Television Writing One-Hour Drama/Half-Hour Dramedy SeriesS. (6, 8)** Lecture, three hours. Recommended prerequisite: course 131. Examination of one-hour drama and dramedy formats, covering style, content, and structural analysis. Review of principles behind network needs and how pilots are chosen across broadcast, cable and digital platforms. Students write series outline and first draft of original pilot series. Open to works in progress and rewrites. Offered summer only. Letter grading.

**134. Intermediate Screenwriting Workshop (4)** Seminar, three hours. Problems in film and television writing. P/NP or letter grading.

**135A. Advanced Screenwriting Workshop (6)** Laboratory, three hours. Prerequisite: course 134. Course 135A is prerequisite to 135B, which is prerequisite to 135C. Course in film and television writing. First act of original screenplay to be developed. Letter grading.

**135B. Advanced Screenwriting Workshop (6)** Laboratory, three hours. Prerequisite: course 135A. Limited to Film and Television majors. Designed for seniors. Course in film and television writing. Second act of original screenplay to be developed. Letter grading.

**135C. Advanced Screenwriting Workshop (8)** Laboratory, three hours. Prerequisite: course 135B. Limited to Film and Television majors. Designed for seniors. Course in film and television writing. Third act of original screenplay to be developed. Letter grading.

**140. Interactive Expression (4)** Lecture, six hours. Introduction to history and practice of interactive media, with emphasis on uniqueness of computer-mediated expression. Letter grading.

**C142. Digital Imagery and Visualization (4)** Lecture, three hours; laboratory, three hours. Introductory hands-on investigation of techniques of digital still imaging and aesthetics of digital image, in context of examining dynamics of cultural constructions and visual codes. Students conceive and produce several digital image visualizations. May be repeated once for credit. Concurrently scheduled with course C242. Letter grading.

**C143. Moving Digital Image (4)** Lecture, three hours; laboratory, three hours. Investigation of different ways of creating and manipulating linear moving images (digital video) on desktop computers, exploring both creative and theoretical aspects of this production environment. Students conceive and produce number of short projects. Concurrently scheduled with course C243. Letter grading.

**C144. Interactive Multimedia Authoring (4)** Lecture, three hours; laboratory, three hours. Introduction to expressive and aesthetic potential of interactive digital media and its theoretical issues. Exploration of methodologies and tools for media integration, interface design, and interactive audiovisual construction. Students conceive, produce, and master individual interactive multimedia projects. May be repeated once for credit. Concurrently scheduled with course C244. Letter grading.

**C145. Creative Authoring for World Wide Web (4)** Lecture, three hours; laboratory, three hours. Exploration of creative aspects of World Wide Web as medium for personal/collective expression. Students produce Web works and serve them online. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences. May be repeated once for credit. Concurrently scheduled with course C245. Letter grading.

**146. Art and Practice of Motion Picture Producing (4)** Lecture, three hours. Exploration of role of producer as both artist and business person. Comparative analysis of screenplays and completed films. Emphasis on assembly of creative team and analysis of industrial context, both independent and studio. Screenings viewed outside of class and on reserve at Powell Library. Letter grading.

**C147. Production Management: Physical Production for Creatives (4)** Lecture, three hours; laboratory, one hour. Analysis of procedure, problems, and budgets in planning feature-length script for film and television production, with emphasis on role of producer and creative organizational techniques of producing. Concurrently scheduled with course C247. Letter grading.

**C148. Advanced Digital Media Workgroup (4)** Laboratory, two hours; discussion, four hours. Designed for students with previous laboratory course experience to provide opportunity to create larger-scale digital media works with advanced software tools and techniques in small process-oriented, creative workshop environment. May be repeated twice for credit. Concurrently scheduled with course C248. Letter grading.

**150. Cinematography (4)** Lecture, three hours; laboratory, three hours. Prerequisite: course 101A. Corequisite: course 154. Limited to Film and Television majors. Introduction to motion imaging photography for thorough understanding of fundamental tools and principles of cinematography to create images that support and enhance story of film, achieve comprehension of principles of motion imaging photography through lectures, discussions, and screenings, develop skills of cinematographer by shooting exercises during laboratory pe-

riod, and acquire appreciation of art of cinematography. Language and skills of image construction provided, as well as image analysis and deconstruction. Letter grading.

**151. Introduction to Experimental Filmmaking (4)** Lecture, three hours; laboratory, to be arranged. Techniques of image manipulation, design, and art direction. Production and completion of exercise (no longer than three minutes). May be repeated twice for credit. Letter grading.

**152. Film and Television Sound Recording (4)** Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Introduction to principles and practices of film and television sound recording, including supervised exercises. P/NP or letter grading.

**C152C. Digital Audio Postproduction (4)** Lecture, three hours; laboratory, three hours. Enforced requisites: courses 101A, 185. Limited to Film and Television majors. Through discussion, demonstrations, and laboratory assignments, exploration of digital audio tools and procedures available to today's filmmakers. Coverage of many technical, equipment, and software step-by-steps, with emphasis on creative process. Concurrently scheduled with course C452C. Letter grading.

**153. Motion Picture Lighting (4)** Lecture, three hours; laboratory, three hours. Enforced requisites: courses 52, 101A, 185. Limited to Film and Television majors. Introduction to principles and tools of lighting used in visual storytelling through lectures, discussions, and screenings. Creative lighting techniques covering topics such as people, environment, spatial relationships, movement, color, special effects, and continuity. Letter grading.

**154. Film Editing (4)** Lecture, three hours; laboratory, two hours. Requisite: course 101A. Corequisite: course 150. Limited to Film and Television majors. Introduction to artistic and technical problems of film editing, with practical experience in editing of image and synchronous sound. Letter grading.

**C154B. Advanced Film Editing (4)** Lecture, three hours; laboratory, one hour. Preparation: submission of rough cut of existing project or proposal to edit work of another director. Enforced requisites: courses 154, 185. Limited to Film and Television majors in postproduction phase with advanced knowledge of organization and operation of postproduction process. Students may also propose to edit significant scene given to them by instructor. Concurrently scheduled with course C454B. Letter grading.

**155. Introduction to Digital Media and Tools (4)** Lecture, six hours; laboratory, one hour. Enforced requisite: course 101A. Limited to Film and Television majors. Instruction and exercises in basic concepts and software of virtual production environments and digital postproduction tools. Letter grading.

**C157. Lighting for Film and Television (4)** Lecture, two hours; laboratory, six hours. Requisite: course 52. Limited to Film and Television majors. Lectures, supervised exercises on stage or in exterior, screenings of scenes, and discussions aimed at learning to master lighting to create appropriate mood or atmosphere of premeditated scene recorded on film or through electronic system. May be repeated twice for credit. Concurrently scheduled with course C417. Letter grading.

**C158. Digital Workflow. (2 to 4)** Lecture, three hours; laboratory, two hours. Requisites: courses 52, 185. Limited to departmental majors. Through discussions, demonstrations, outside speakers, and laboratory assignments, demystification of ever-changing world of digital workflow. Students plan, schedule, and budget their overall workflow in preproduction. May be repeated once for credit. Concurrently scheduled with course C454C. Letter grading.

**163. Directing Cameras (4)** Laboratory, three hours. Enforced requisite: course 101A. Limited to Film and Television majors. Investigation of expressive potential of image within and beyond narrative from directorial perspective. Experiments with working methodologies that stimulate visual creativity and positioning image as fundamental element of cinematic expression. Letter grading.

**164. Directing Actors (4)** Laboratory, four hours. Exercises in analysis of script and character for purpose of directing actors. Emphasis on eliciting best possible performance from actors. May be repeated twice for credit. P/NP or letter grading.

**C168. Creative Location Film Production (8)** Lecture, four hours; discussion, four hours; laboratory, to be arranged. Limited to directing or producer's program students. Problems of location, production, directing, and cinematography in various real-life practical locations. Practical application of solving problems and communication within limitations of production experience. Concurrently scheduled with course C468. Letter grading.

**175A. Undergraduate Film Production (12)** Lecture, four hours; laboratory, eight hours. Requisite: 185. Course 175A is requisite to 175B. Limited to Film and Television majors. Writing, preproduction, and production of short film not to exceed 12 minutes, including credits. Letter grading.

**175B. Undergraduate Film Production. (4 to 8)** Lecture, three hours; laboratory, eight hours. Enforced requisite: course 175A. Limited to Film and Television majors. Completion of postproduction (editing, creation of sound tracks) for short film begun in course 175A. P/NP or letter grading.

**177. Film and Television Acting Workshop (2)** (Same as Theater M178.) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate scenes. Three different production styles to which performers may need to adjust are (1) preproduction rehearsals with director, (2) single-camera experience, and (3) multiple-camera experience. May be repeated twice for credit. Letter grading.

**178. Film and Television Production Laboratory. (2 to 8)** Laboratory, to be arranged. Supervised laboratory experience in various aspects of film and television production. May be repeated for maximum of 12 units, but only 8 units may be applied toward Film and Television major. Letter grading.

**179. Digital Film and Television Production. (2 to 8)** Laboratory, six hours. Supervised laboratory experience in various aspects of film and television production. Offered in summer only. Letter grading.

**180A. Animation Fundamentals (5)** Lecture, six hours; laboratory, six hours. Fundamentals of animation through exercises and preparation of short animated film. Students create 10-second film in one of traditional techniques (non-computer), with music and/or sound effects. Offered in summer only. Letter grading.

**180B. Writing for Animation (4)** Lecture, two hours; laboratory, six hours. Analysis and practice of effective visual storytelling through creation of three production storyboards. Offered in summer only. Letter grading.

**180C. Stop Motion Fundamentals Workshop. (2 to 4)** Lecture, six hours; laboratory, six hours. Exercises designed to teach technical skills, processes, and principles of motion and timing. Use of range of materials, building animation performances in split-second increments arranged to give illusion of movement. Exploration of early history of stop motion. Collaborative creation of stop-motion film with each student directing and animating portion of film. Offered in summer only. Letter grading.

**C181A. Introduction to Animation (5)** Lecture, three hours; laboratory, three hours. Drawing experience not required. Fundamentals of animation through preparation of short animated film. Concurrently scheduled with course C481A. P/NP or letter grading.

**C181B. Writing for Animation. (4, 8)** Lecture, six hours; studio, to be arranged. Requisite: course C181A or consent of instructor. Research and practice in creative writing and planning for animated film. May be repeated for maximum of 16 units. Concurrently scheduled with course C481B. P/NP or letter grading.

**C181C. Animation Workshop. (4, 8)** Studio, six hours. Preparation: storyboard at first class meeting. Requisite: course C181A. Organization and integration of various creative arts used in animation to form complete study of selected topic. May be repeated for maximum of 16 units. Concurrently scheduled with course C481C. P/NP or letter grading.

**182. Power, Identity, and Justice (4)** Lecture, three hours. Examination of how politics, economics, labor, and identity intersect and affect representation, employment, and industry cultures, especially of groups long underserved in mainstream film, television, and media industry. Offered in summer only. P/NP or letter grading.

**183A. Producing I: Film and Television Development (4)** Lecture, three hours. Open to nonmajors. Critical analysis of contemporary entertainment industries and practical approach to understanding and implementing producer's role in development of feature film and television scripts. Through scholarly and trade journal readings, in-class discussions, script analysis, and select guest speakers, exposure to various entities that comprise feature film and television development process. Basic introduction to story and exploration of proper technique for evaluating screenplays and teleplays through writing of coverage. May be taken independently for credit. Letter grading.

**183B. Producing II: Entertainment Economics (4)** Lecture, three hours. Open to nonmajors. Critical understanding of strategies and operating principles that drive flow of revenue in entertainment industry. Exploration of theoretical frameworks and development of critical perspective, while studying industrial processes through which movie and television properties are financed and exploited throughout all revenue streams. May be taken independently for credit. Letter grading.

**183C. Producing III: Marketing, Distribution, and Exhibition (4)** Lecture, three hours. Open to nonmajors. Marketing and distribution of feature films across multiple exhibition platforms and subsequent reception and consumption by audiences. Focus on engagement between distributor, exhibitor, and audience and analysis of various conceptual frameworks and industrial strategies within which these relationships are conceived and operate. May be taken independently for credit. Letter grading.

**184B. Overview of Contemporary Television Industry (4)** Lecture, three hours. Examination of evolving economic structures and business practices in contemporary Hollywood television industry, with emphasis on operations of networks and cable companies, series development, marketing, and network branding from 1947 to present. Letter grading.

**185. Intermediate Undergraduate Film Production (6)** Laboratory, six hours. Requisites: courses 52, 154, 155, 163. Limited to Film and Television majors. Instruction and exercises in all stages of film production. Letter grading.

**C186A. Advanced Documentary Workshop (4)** Lecture, three hours; laboratory, three hours; fieldwork, four to six hours. Requisite: course 185. Course 186A is requisite to 186B, which is requisite to 186C. Introductory viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of series of exercises from conceptualization through postproduction, culminating in production of short documentary. Concurrently scheduled with course C403A. Letter grading.

**C186B. Advanced Documentary Workshop (4)** Lecture, three hours; laboratory, three hours; fieldwork, four to six hours. Requisite: course C186A. Intermediate viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of series of exercises from conceptualization through postproduction, culminating in production of short documentary. Concurrently scheduled with course C403B. Letter grading.

**C186C. Advanced Documentary Workshop (4)** Lecture, three hours; laboratory, three hours; fieldwork, four to six hours. Requisite: course C186B. Advanced viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of series of exercises from conceptualization through postproduction, culminating in production of short documentary. Concurrently scheduled with course C403C. Letter grading.

**187A. Global Film and Television Development (4)** Lecture, three hours. Exploration of film and television development practices in key international markets. Introduction to key international markets, prominent global development and production entities, and their properties and development strategies. Designed to blend theory with practical application. Students read both academic literature and trade publications addressing development practices in U.S. and around world, and gain understanding of mechanisms that drive development in domestic and international territories. P/NP or letter grading.

**187B. Domestic and Global Entertainment Industry Careers and Strategies (4)** Lecture, three hours. Exploration of select film and television career paths and strategies in U.S. and major international markets. Introduction to typical and atypical career paths and strategies of producers, screenwriters, directors, and creative executives in U.S. and abroad. Students take part in moderated discussions with domestic and international industry professionals and read both academic literature and trade publications addressing current state of domestic and global media industries. Through readings and discussions, students gain understanding of rapidly changing global entertainment landscape, and current and future employment trends and project development strategies. P/NP or letter grading.

**187C. Scripted and Unscripted Series Development for Domestic and Global Streaming Services (4)** Lecture, three hours. Designed to enhance students' understanding of processes involved in domestic and international fiction and nonfiction development of properties for streaming services. Students are acquainted with common business and creative practices, while expanding their critical and practical understanding of quickly evolving and transforming global streaming landscape. Examination of creative development processes and strategies for scripted and unscripted series for streaming services in U.S., and similarities and differences in business as well as creative approaches in major international territories. Examination of latest trends in fiction and nonfiction development, including strategies to work with international coproduction partners and developing projects using pre-viz and virtual production techniques. Covers streaming markets in North American, Europe, Asia, and Central and South America. P/NP or letter grading.

**188A. Special Courses in Film, Television, and Digital Media (4)** Lecture, three hours; discussion, one hour. Special topics in film, television, and digital media for undergraduate students taught on experimental or temporary basis. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**194. Internship Seminars: Film, Television, and Digital Media (2)** Seminar, two hours. Designed for students currently in departmental internships. General introduction to contemporary film and television industries and discussion and engagement with and expansion on internship experiences. Common business practices and expansion of critical understanding of industry at large. May be repeated for credit. Letter grading.

**195. Corporate Internships in Film, Television, and Digital Media (2, 4)** Tutorial, one hour; internship, eight hours. Limited to juniors/seniors. Corporate internship in supervised setting in business related to film, television, and digital media industries. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Corporate Internships in Film, Television, and Digital Media (4)** Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Corporate internship in supervised setting in business related to film, television, and digital media industries. Examination of issues related to internship site through series of reading assignments constructed by faculty sponsor and graduate student coordinator. May be repeated for credit with consent of Center for Community Engagement. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research or Senior Project in Film, Television, and Digital Media (2 to 8)** Tutorial, three hours. Limited to senior Film and Television majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be taken for maximum of 8 units. Individual contract required. P/NP or letter grading.

## Graduate

**200. Seminar: Research, Methods, and Resources (6)** Seminar, three hours; laboratory, four to six hours (additional screenings and/or video laboratory work as required). Designed for graduate students. Examination and study of research methods, techniques, and resources related to film and television research, including development of computer skills for preparation of bibliographies, online database searching and retrieval and, when appropriate, use of computer/videodisc technology for research. Letter grading.

**201A. Seminar: Media Industries and Cultures of Production—Foundations (6)** Seminar, three hours; film screenings, three hours. Critical study of various scholarly traditions and methods (ethnographic, sociological, political-economic, geographic) that have been used to study film and television production practices as cultural, social, and industrial phenomena, as basis for individual student research projects. Letter grading.

**201B. Seminar: Media Industries and Cultures of Production—Transmedia (6)** Seminar, three hours; film screenings, three hours. Examination of contemporary production studies research and transmedia practices, including innovations in marketing, licensing, distribution, industrial organization, creative work, new technologies, and evolving relations between fans and producers in digital economy. Letter grading.

**202. Seminar: Media Audiences and Cultures of Consumption (6)** Seminar, three hours; film screenings, three hours. Critical study of reception and use of television and electronic media and examination of theoretical approaches to culture and audience research. Consideration of issues of cultural taste, consumerism, style/lifestyle, identity, and relationships between audience, industry, and mass-marketed images/commodities. Letter grading.

**203. Seminar: Film and Other Arts (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies in interrelationships between film and fine arts, or performing arts, or literature, with emphasis on ways these other arts have influenced film. May be repeated twice for credit. S/U or letter grading.

**204. Seminar: Visual Analysis (6)** Seminar, three hours; film screenings, two to four hours. Study of visual analysis (or textual analysis), using DVD accessing features, as approach to learning what makes film great and distinct art form. Exploration of role of visual style in narrative fiction filmmaking to attempt to understand some ways it can operate. Letter grading.

**205. Seminar: Videographic Scholarship (6)** Seminar, three hours; laboratory, three hours. Prior technical knowledge not required; technical assistance is available. Creation of individual original research projects in film/television history and analysis destined for audio-visual medium, finalized as high-resolutions DVDs. Projects may be extensions of research intended for print publication, dissertation chapters, conference presentations, teaching, etc. Equal emphasis on acquiring basic skills needed to create visual essays and on methods of research for this new form of scholarly research. Comparison of limits and advantages of print versus audio-visual publication. Use of Adobe Production Suite. Letter grading.

**206A. Seminar: European Film History (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies in different periods of European cinemas or movements. Topics may include Italian neo-realism, French film of 1930s, French New Wave and crime film, Weimar cinema, and Soviet silent cinema. See annual departmental listings for special topics. May be repeated twice for credit with topic change. Letter grading.

**206B. Seminar: Selected Topics in American Film History (6)** Seminar, three hours; film screenings, three hours. Seminar with focus on specific topic or period in American film history. Letter grading.

**206C. Seminar: American Film History (6)** Seminar, three hours; film screenings, four hours. Introduction to industrial, social, and aesthetic history of American film. Letter grading.

**206D. Seminar: Silent Film (6)** Seminar, three hours; film screenings, two to four hours. Discussion of silent film from its beginning in 1895 to transition to sound cinema in 1927 to 1930. Film viewings discussed in terms of genre, national cinema, formal developments, and directors. Readings on film historical and theoretical issues. Letter grading.

**207. Seminar: Experimental Media (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies of form, style, politics, and history of experimental, innovative, avant-garde, and minority film and video. Letter grading.

**208A. Seminar: Film Structure (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Examination of various film conventions, both fictional and nonfictional, and of role of structure in motion picture. S/U or letter grading.

**208B. Seminar: Classical Film Theory (6)** Seminar, three hours; film screenings, four hours. Study of principal topics and lines of inquiry that characterize theoretical writings of Arnheim, Eisenstein, Bazin, Kracauer, etc. Letter grading.

**208C. Seminar: Contemporary Film Theory (6)** Seminar, three hours; film screenings, four to six hours. Requisite: course 208B. Designed for graduate students. Study of redefinition of aims and methods of film theory through contemporary writings. S/U or letter grading.

**209A. Seminar: Documentary Film (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Nonfictional film and its relation to contemporary culture. S/U or letter grading.

**209D. Seminar: Animated Film (6)** Seminar, three hours; film screenings, three hours. Designed for graduate students. Critical study of animated film: its historical development, structure, style, use, and relation to contemporary culture. S/U or letter grading.

**210. Viewing and Reading Media (4)** Lecture, three hours; media viewings, three hours. Study engages media originating on different platforms and deriving from different modes of production, cultural locations, and various critical approaches. Each approach considers various components of what can be read in individual work including form and aesthetics, organization (narrative/non-narrative, fiction/non-fiction), orientation to spectator or user, industrial or artisanal production context, and relation to historical or cultural moment. Letter grading.

**211. Seminar: Historiography (6)** (Formerly numbered 211A.) Seminar, three hours. Limited to MA and PhD candidates. Examination of function and methods of historiography/history as branch of field of media studies by examining variety of methodologies, debates, and strategies that have shaped often provocative, contradictory, and contested ways that history has been imagined and applied to field of media studies. S/U or letter grading.

**212. Cinema and Media Studies Graduate Colloquium (2)** Lecture, two hours. Exchange with scholars inside and outside department through lectures and academic paper presentation and offers students practice in presenting papers for professional conferences, CV writing seminars, job market/interview

preparation seminars, and discussion of current topics and trajectory of area of cinema and media studies. May be repeated for maximum of 14 units. S/U grading.

**213. Capstone Seminar (6)** Seminar, three hours. Limited to Film and Television MA candidates. Capstone course for cinema and media studies master's program. Students write, revise, and present comprehensive essay on preapproved topic derived from their MA coursework. Letter grading.

**215. Seminar: Text and Context in Intermedia Age (6)** Seminar, three hours. Limited to Film and Television MA and PhD candidates. Introduction to range of textual and contextual approaches to studying cinema and media. Broad historical overview of intellectual history of field, combining foundational works with more recent publications that address similar theoretical questions. Combines foundational writings in cultural and critical theory with key works in cinema and media studies that deploy these theories to analyze screen texts, cultures, institutions, and industries. S/U or letter grading.

**216. Film, Costume, and Character (6)** Seminar, three hours; film screenings, three hours. Exploration of integration of costume design into filmmaking process and illumination of work required to bring characters from written page to life. Discussion of practice of costume design. Analysis of films from various genres. Letter grading.

**217A. Seminar: American Television History (6)** Seminar, three hours; screenings, four hours. Critical survey of U.S. television industry from its inception to present. Examination of programming and changes within industry by considering range of technological, economic, aesthetic, social, and cultural dimensions. Letter grading.

**217B. Seminar: Selected Topics in Television History (6)** Seminar, three hours; screenings, three hours. Advanced critical seminar, with focus on specific topic or area (historical period, industry, programming, genre, or social formation) in domestic or international television. Letter grading.

**218 Seminar: Culture, Media, and Society (6)** Seminar, three hours; screenings/discussion, four hours. Emphasis on discourse of other(s). Thematization of other is concerned with theories of difference rather than similarity or identity—with how other cultures enter into politics of representation and representation of politics through metaphors of (1) difference without opposition, (2) heterogeneity without hierarchy, and/or (3) otherness without ethnocentrism. Examination of how women, national minorities, and Third World peoples have been rendered others; place of cinematic apparatus in this process and how academization of others is positioned vis-à-vis mainstream critical discourse. Letter grading.

**219. Seminar: Film and Society (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Study of ways film affects and is affected by social behavior, belief, and value systems; considered in relation to role of media in society. May be repeated once for credit. S/U or letter grading.

**220. Seminar: Television and Society (6)** Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Study of ways television forms affect and are affected by social behavior, belief, and value systems; study of technological and economic aspects of medium. May be repeated once for credit. S/U or letter grading.

**221. Seminar: Film Authors (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Intensive examination of works of outstanding creators of films. May be repeated twice for credit. S/U or letter grading.

**222. Seminar: Film Genres (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies of patterns, styles, and themes of such genres as Western, gangster, war, science fiction, comedy, etc. May be repeated twice for credit. S/U or letter grading.

**223. Seminar: Visual Perception (6)** Seminar, three hours; film screenings, three hours. Aesthetic, psychological, physiological, and phenomenological approaches to vision as they relate to ways in which viewers experience and see film, television, and digital media. Letter grading.

**224. Computer Applications for Film Study (6)** Lecture, three hours; film screenings, three hours. Survey of computer applications relevant to film study, principally computer-videodisc systems and image capture technology. S/U or letter grading.

**225. Seminar: Videogame Theory (6)** Seminar, three hours; laboratory, three hours. Videogame theory, with exploration of nature of medium, rather than looking at history, industrial practice, social effects, or any other of many interesting questions that games also raise. Acknowledgment of roots in film, television, and media studies and investigation of emerging videogame field. S/U or letter grading.

**CM229. Contemporary Topics in Theater, Film, and Television (2)** (Same as Theater CM229.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of cre-

ative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM129. S/U or letter grading.

**C242. Digital Imagery and Visualization (4)** Lecture, three hours; laboratory, three hours. Introductory hands-on investigation of techniques of digital still imaging and aesthetics of digital image, in context of examining dynamics of cultural constructions and visual codes. Students conceive and produce several digital image visualizations. May be repeated once for credit. Concurrently scheduled with course C142. Letter grading.

**C243. Moving Digital Image (4)** Lecture, three hours; laboratory, three hours. Investigation of different ways of creating and manipulating linear moving images (digital video) on desktop computers, exploring both creative and theoretical aspects of this production environment. Students conceive and produce number of short projects. Concurrently scheduled with course C143. Letter grading.

**C244. Interactive Multimedia Authoring (4)** Lecture, three hours; laboratory, three hours. Introduction to expressive and aesthetic potential of interactive digital media and its theoretical issues. Exploration of methodologies and tools for media integration, interface design, and interactive audiovisual construction. Students conceive, produce, and master individual interactive multimedia projects. May be repeated once for credit. Concurrently scheduled with course C144. Letter grading.

**C245. Creative Authoring for World Wide Web (4)** Lecture, three hours; laboratory, three hours. Exploration of creative aspects of World Wide Web as medium for personal/collective expression. Students produce Web works and serve them online. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences. May be repeated once for credit. Concurrently scheduled with course C145. Letter grading.

**246. Seminar: Issues in Electronic Culture (6)** Seminar, three hours; laboratory, three hours. Critical studies seminar with major hands-on laboratory component that explores impact of new digital technologies on contemporary culture and aesthetics. Students do laboratory projects using visualization, image manipulation tools, and Internet authoring tools. Letter grading.

**C247. Production Management: Physical Production for Creatives (4)** Lecture, three hours; laboratory, one hour. Analysis of procedure, problems, and budgets in planning feature-length script for film and television production, with emphasis on role of producer and creative organizational techniques of producing. Concurrently scheduled with course C147. Letter grading.

**C248. Advanced Digital Media Workgroup (4)** Laboratory, two hours; discussion, four hours. Designed for students with previous laboratory course experience to provide opportunity to create larger-scale digital media works with advanced software tools and techniques in small process-oriented, creative workshop environment. May be repeated twice for credit. Concurrently scheduled with course C148. Letter grading.

**270. Seminar: Film Criticism (6)** Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Study of key aesthetic questions of analysis and evaluation in relation to central works of motion picture criticism. May be repeated once for credit. S/U or letter grading.

**271. Seminar: Television Criticism (6)** Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Analysis of major forms of television production and criticism it has elicited. May be repeated once for credit. S/U or letter grading.

**273. Seminar: Contemporary Film and Television Criticism (6)** Seminar, three hours; film and television screenings, four to six hours. Limited to Film and Television PhD candidates. Study and practice of analytic and critical response, with emphasis on contemporary film and television. S/U or letter grading.

**274. Seminar: Research Design (6)** Seminar, three hours. Designed for second-year Film and Television PhD students. Examination of general principles that govern formulation of major research projects and preparation of prospectus for PhD dissertation. S/U or letter grading.

**274A. Research Design 1: Initial Research Design (6)** Seminar, three hours. Introduction to components of dissertation prospectus including development of fields of study, situating one's work in relation to fields of audio/visual material. Study helps prepare students for comprehensive examinations and decide which fields of study best align with chosen methodological approaches. Establishment of a literature review, work plan, bibliography, filmography, and/or archive of visual/audio media. Development of research questions, bibliographic research, literature review, methodology of evidence gathering in relation to project. Setting and justification of project scope. S/U or letter grading.

**274B. Research Design 2: Bibliography (6)** Seminar, three hours. Building reading lists and reading texts essential to development of dissertation project. S/U or letter grading.

**274C. Research Design 3: Writing Prospectus (6)** Seminar, three hours. Workshop in writing dissertation prospectus. S/U or letter grading.

**276. Seminar: Non-Western Films (6)** Seminar, three hours (additional hours as required); film screenings, three hours. Designed for graduate students. Study of aesthetic and ideological impulses of selected films from Asia, Africa, and Latin America. S/U or letter grading.

**277. Seminar: Narrative Studies (6)** Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Study of writings on theory of narrative structure and their significance for analysis of film forms. S/U or letter grading.

**282A. TV Development 1 (4)** Seminar, three hours. Basic tenets and analysis of television scripted shows and contemporary industry production and business practices. Development of original show concepts and pitch for review and feedback by class, instructor, and guests. Letter grading.

**282B. TV Development 2 (4)** Seminar, three hours. Advanced analysis of television scripted shows and contemporary industry production and business practices. Continued development of original show concepts and series proposals for review and feedback by class, instructor, and guests. Letter grading.

**283A. Fundamentals of Writing for Television (4)** Lecture, three hours. Comprehensive overview of today's television landscape for writers, with emphasis on new structures and formats ushered in by on-demand, digital television revolution. Letter grading.

**283B. Writing Half-Hour Comedy Pilot and Series Bible (8)** Seminar, three hours. Enforced requisite: course 430. Examination of basics of half-hour pilot format, style, and content, and learning of principles behind network needs and choices in choosing pilots. Workshop in which to discuss ideas and issues with class and instructor. Weekly progress on original half-hour pilot and series bible required. Letter grading.

**283C. Running Television Comedy Room (4)** Seminar, three hours. Enforced requisite: course 283B. Practical knowledge about skills necessary to be writer/executive producer of half-hour comedy show. Focus on community building, collaboration, and leadership skills needed to successfully function in writers' room, as well as breaking stories, writing, and rewriting television scripts. Letter grading.

**284A. Writing One-Hour Drama Speculative Episode (4)** Seminar, three hours. Basic tenets and analysis of television drama shows and contemporary industry production and business practices. Students write speculative (spec) episode for existing one-hour drama series. Letter grading.

**284B. Writing One-Hour Drama Pilot and Series Bible (8)** Seminar, three hours. Enforced requisite: course 430. Examination of basics of drama pilot format, style, and content, and learning of principles behind network needs and choices in choosing pilots. Workshop in which to discuss ideas and issues with class and instructor. Weekly progress on original drama pilot and series bible required. Letter grading.

**284C. Running Television Drama Room (4)** Seminar, three hours. Enforced requisite: course 284B. Practical knowledge about skills necessary to be writer/executive producer of one-hour drama show. Focus on community building, collaboration, and leadership skills needed to successfully function in writers' room, as well as breaking stories, writing, and rewriting television scripts. Letter grading.

**285. The Limited Series (8)** Seminar, three hours. Writing workshop and seminar that investigates, through reading scripts and viewing episodes of celebrated limited series, creation of an original limited series for television including broadcast, cable, streaming, and new media formats. Letter grading.

**286. Television Speculative Script (4)** Seminar, three hours. Writing workshop in which students write a speculative episode for an existing one-hour drama series of a half-hour comedy/dramedy series. Letter grading.

**287A. Introduction to Art and Business of Producing I (4)** Seminar, three hours. Introduction for first-year producers program students to producer's role in navigating unique dynamic between art and commerce in entertainment industry. Overview of development, production, and distribution of feature films for worldwide theatrical market, including identifying material, attracting elements, and understanding basics of studio and independent financing and distribution. S/U or letter grading.

**287B. Introduction to Art and Business of Producing II (4)** Seminar, three hours. Requisite: course 287A. Builds on principles taught in course 287A and presents continuation of study of development, production, and distribution of feature films for worldwide theatrical market, including identifying material, attracting talent elements, and understanding basics of studio and independent

dent financing and distribution. Minimum of two unproduced screenplays to be presented for review by class and instructor to begin identifying potential thesis projects. S/U or letter grading.

**287C. Introduction to Art and Business of Producing III (4)** Seminar, three hours. Requisites: courses 287A, 287B. Builds on principles taught in courses 287A and 287B. Presentation of screenplays prepared in course 287B for review by class and instructor with goal of isolating and identifying primary and secondary thesis projects. Discussions of script analysis and creating set of viable development notes for primary projects. Completion of written outline for original projects and pitching of primary projects to panel of industry executives for further feedback. S/U or letter grading.

**288A. Feature Film Development I (4)** Lecture, three hours. Course 288A is requisite to 288B. Practical hands-on approach to understanding and implementing producer's role in development of feature film screenplay and negotiating particulars of production process. Through in-class discussions, script analysis, story notes, and select guest speakers, exposure to various entities that comprise feature film development process. Basic introduction to story and exploration of proper technique for evaluating screenplays through writing of coverage. S/U or letter grading.

**288B. Feature Film Development II (4)** Lecture, three hours. Requisite: course 288A. Practical hands-on approach to understanding and implementing producer's role in development of feature film screenplay and negotiating particulars of production process. Through in-class discussions, script analysis, story notes, and select guest speakers, exposure to various entities that comprise feature film development process. Deeper evaluation of screenplay through writing of story notes. S/U or letter grading.

**289A. Current Business Practices in Film and Television (4)** Discussion, three hours. Requisite: course C247. Designed for graduate students. Examination of current status of financing/production/distribution agreements, union agreements, music, copyright, etc., necessary to understand film and television industry. S/U or letter grading.

**289B. Strategy (4)** Lecture, three hours. Course 289A is not requisite to 289B. Examination of business realities of industry, with focus on techniques for analyzing behavior, making strategic decisions, and overcoming obstacles to achieving results as producer, writer, or director. Assignments designed to assist students in articulating and achieving their goals and to help them effectively transition from classroom to their careers in entertainment industry. S/U or letter grading.

**289C. Independent Spirit: Creative Strategies for Financing and Distributing Independent Features (4)** Lecture, three hours. Course 289B is not requisite to 289C. Key insights into financing and distribution of independent or specialty films. Topics include film finance, production, marketing, distribution, agents, and new technology, with emphasis on applying this knowledge to individual student projects. S/U or letter grading.

**290A. Thesis Workshop 1 (4)** Seminar, three hours. Forum for roundtable strategy sessions and mock story meetings with instructor, students, and various industry guests. Development of one story idea for thesis project. S/U or letter grading.

**290B. Thesis Workshop 2 (4)** Seminar, three hours. Forum for roundtable strategy sessions and mock story meetings. Students must make concrete weekly progress on thesis project and adapt strategy based on feedback received. Development of marketing and business strategies for story idea set up in course 290A. S/U or letter grading.

**290C. It's a Wrap: Preparation for Your Entertainment Career (4)** Seminar, three hours. Final stages of thesis preparation for evaluation. Guidance provided by instructor on how to effectively present selected project. Requirements include industry-related book reports, script analysis, pitching selected concept, weekly research to understand marketplace, accumulation and updating of data, and justification for potential buyers comprised of industry professionals. S/U or letter grading.

**291A. Studios versus Independents: Navigation Process (4)** Lecture, three hours. Tools necessary for producer to navigate Hollywood entertainment industry. Topics discussed through lectures and guest speakers include impact of difficulty to navigate relationship between art and commerce in craft of filmmaking, rapid advance of new technologies, diverse new means of building finance capital for emerging producing entities, and what future may hold for truly independent filmmaker. S/U or letter grading.

**291B. Feature Film Marketing (4)** Lecture, three hours. Course 291A is not requisite to 291B. Examination of numerous groups that are responsible for specific marketing components and make up marketing departments. Distribution and in-theater marketing, trailers, publicity, promotions, research, and media. Mechanics and levels of intuition required to make sure movies are seen by public. S/U or letter grading.

**291C. Feature Film Distribution and Exhibition (4)** Lecture, three hours. Course 291B is not requisite to 291C. Investigation of philosophy, structure, and major players that make up entertainment industry, with emphasis on film distribution and exhibition. Through lectures, readings, and guest speakers, exploration of interrelated arenas of production, marketing, business affairs, media, and impact of international market on distribution and exhibition of studio releases. S/U or letter grading.

**292A. Overview of Network Television Management (4)** Lecture, three hours. Designed to expand basic understanding of network and cable television business. Exploration of role of showrunner, executives from networks and production companies, packaging agents, and studios responsible for developing and creating programming. S/U or letter grading.

**292B. Adapting Intellectual Property for Television (4)** Seminar, three hours. Advanced examination of techniques and strategies for concept ideation, property acquisition, and television adaption. Development of television series concepts based on preexisting material. S/U or letter grading.

**292C. Running Shows: Producing for Broadcast and Cable (4)** Lecture, three hours. Course 292B is not requisite to 292C. Exploration of role of writers-producers or showrunners in creating television shows. Designed to train writers who typically enter field as staff writers and to develop concrete tools of producers. Training of next generation of nonwriting network and studio development executives whose job it is to assist writers-producers in highly collaborative process of creating, developing, producing, and scheduling television programming. S/U or letter grading.

**294A. Contracts and Negotiation (4)** Lecture, three hours. Survey of range of contracts involved in studio productions, including literary submission and option agreements, artist employment, director employment, writer collaboration agreements, coproduction agreements, music rights license, etc. Actual studio agreements referenced to illuminate potential consequences of each transaction. Negotiation strategy exercises. S/U or letter grading.

**294B. Entertainment Law, Business Practices, and Negotiation Strategies (4)** Lecture, three hours. Course 294A is not requisite to 294B. Introduction to feature-length motion picture business and law from perspective of independent and studio producer. Students establish working knowledge of entertainment law and business practices through basic understanding of important legal concepts and business considerations in connection with development, production and distribution, material terms of fundamental rights and talent agreements, and negotiation strategy. S/U or letter grading.

**294C. International Financing and Distribution (4)** Lecture, three hours. Course 294B is not requisite to 294C. Legal-based course dealing with independent finance and distribution of feature films. Topics include fundamentals of film financing, domestic distribution, international distribution, European coproductions, role of foreign sales agents and of bankers and completion bond companies. S/U or letter grading.

**295A. Art of Presentation (4)** Lecture, three hours. Cultivation of skills needed for students to present themselves and their project goals with clarity and precision to industry professionals. Oral presentations designed to enhance student ability to deliver convincing arguments on range of topics. S/U or letter grading.

**295B. Advanced Film and Television Producing Workshop for Producers, Writers, and Directors (4)** Lecture, three hours. Course 295A is not requisite to 295B. Designed to help producers, as well as screenwriters and directors, focus on networking opportunities and to develop strategies to bring their feature and television projects to marketplace. Case-study documents (drafts of screenplays, dailies, etc.) from current or recently produced projects provided. S/U or letter grading.

**295C. Advanced Producing: Role of Successful Producer (4)** Lecture, three hours. Designed to provide producers with comprehensive understanding of business acumen involved in purchasing scripts for studios and independent production companies. Through script analysis and in-class discussions, students encouraged to examine not just story elements, but marketing assets inherent in pieces of material. S/U or letter grading.

**296A. Role of Talent Agencies (4)** Lecture, three hours. Introductory overview of various departments at agencies, including motion picture literary, talent, story, packaging, and television, and examination of various interactions among each. Exercises encourage producers, writers, and directors to learn how to work effectively with individuals at talent agencies. S/U or letter grading.

**296B. Who Represents Me? (4)** Lecture, three hours. Course 296A is not requisite to 296B. In-depth analysis of different forms of representation offered by agents, managers, business managers, and lawyers and detail of legal rights and responsibilities of each. Exercises require students to represent rights holders in series of potential projects. S/U or letter grading.



**297A. Digital Media Producing 1 (4)** Seminar, three hours. Overview of changing world of storytelling through development of new technologies and new media. Conceptualization and pitch of innovative, original, digital media concepts with interactive or participatory story elements for review and feedback by class, instructor, and guests. S/U or letter grading.

**297B. Digital Media Producing 2 (4)** Seminar, three hours. Examination and analysis of creative and physical production processes for producing content for digital platforms. Development of production plans for original scripted and unscripted digital and web-based series. S/U or letter grading.

**297C. Digital Media Producing 3 (4)** Seminar, three hours. Overview of changing world of storytelling through development of new technologies and new media. Development of short teaser trailer or website using digital and web-based resources to promote student original digital media project proposal. S/U or letter grading.

**298A. Special Studies in Film and Television. (2 to 6)** Seminar, three hours; film screenings, three hours. Designed for graduate students. Seminar study of problems in film and television, organized on topic basis. May be repeated once for credit. S/U or letter grading.

**400. Film Image Design Laboratory (4)** Lecture, two hours; laboratory, six hours. Limited to graduate film and television students. Conception and design of nonnarrative film imagery. One-minute experiments in relation of meaning to technique, including manipulation of optics, photochemistry, elements of electronic processes, and display of time and motion. May be repeated once for credit. S/U or letter grading.

**400B. Introduction to Cinematography II (2)** Lecture, three hours; laboratory, three hours. Continuation of study of cinematography with emphasis on lighting. Instructor meets individually with teams of director/cinematographer to prepare for shooting six-minute projects. Letter grading.

**401. Film Analysis for Filmmakers (4)** Lecture/screenings, five hours. Limited to graduate film and television students. Drawing heavily from array of historical examples, examination of many expressive strategies usable in creation of moving image art forms. Unifying theory and practice, presentation of approach to viewing great films of past that empowers filmmakers to use sound and images to tell original stories in present. Focus on strategic decision making in areas of writing, design, cinematography, editing, sound, and performance to enable filmmakers to discover their own personal style for telling stories on screen. Letter grading.

**402A. Advanced Narrative Directing Workshop. (4, 8)** Laboratory, six or 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to nine graduate film and television students. Production of 10- to 15-minute fiction film or project. Students budget and preproduce their projects by end of first term. Letter grading.

**402B. Advanced Narrative Directing Workshop (8)** Laboratory, 12 hours; fieldwork, to be arranged. Requisite: course 402A. Limited to nine graduate film and television students. Production of 10- to 15-minute fiction film or project. In second term students must complete photography on location and/or in studio. Letter grading.

**402C. Advanced Narrative Directing Workshop (4)** Laboratory, four hours. Requisites: courses 402A, 402B. Completion of postproduction on projects started in courses 402A and 402B. Letter grading.

**C403A. Advanced Documentary Workshop. (4 to 8)** Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Requisites: courses 409, 410A, 410B, 410C, 433. Limited to graduate film and television students. Production of advanced individual documentary film or video projects. Students conceptualize, research, write, shoot (on location), and edit projects to completion. May be repeated once for credit. Concurrently scheduled with courses C186A. S/U or letter grading.

**C403B. Advanced Documentary Workshop. (4 to 8)** Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Requisites: courses 409, 410A, 410B, 410C, 433. Limited to graduate film and television students. Production of advanced individual documentary film or video projects. Students conceptualize, research, write, shoot (on location), and edit projects to completion. May be repeated once for credit. Concurrently scheduled with courses C186B. S/U or letter grading.

**C403C. Advanced Documentary Workshop. (4 to 8)** Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Requisites: courses 409, 410A, 410B, 410C, 433. Limited to graduate film and television students. Production of advanced individual documentary film or video projects. Students conceptualize, research, write, shoot (on location), and edit projects to completion. May be repeated once for credit. Concurrently scheduled with courses C186C. S/U or letter grading.

**404. Emerging Techniques and Technologies in Cinematography (4)** Lecture, two hours; laboratory, two hours. Requisite: course 410B. Designed to keep students abreast of ever-changing tools and techniques of cinematography.

Exploration of developing concepts and familiarization with emerging technology and equipment. Focus may change to reflect changes in current technology. May be repeated twice for credit. Letter grading.

**404A. Advanced Abstract/Experimental Media Workshop (8)** Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to 10 students per section. Production of 20-minute abstract or experimental film, video, or multimedia project. Students plan, design, and shoot their projects in first term and work as crew for each other in rotating assignments. S/U or letter grading.

**404B. Advanced Abstract/Experimental Media Workshop (8)** Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to 10 students per section. Production of 20-minute abstract or experimental film, video, or multimedia project. In second term students must complete postproduction of their projects. S/U or letter grading.

**404C. Advanced Abstract/Experimental Media Workshop (8)** Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 404A, 404B. Completion of all stages of production and postproduction on projects started in courses 404A and 404B. Letter grading.

**405. Introduction to Color Grading (4)** Lecture, one hour; laboratory, two hours. Requisite: course 410B. Students achieve an understanding and command of tools and techniques of color correction in Davinci Resolve through lectures, discussions, workshops, and screenings. Increases student's appreciation and skill set in art of color grading in cinematography. Each student conforms, grades, and outputs a project of their choosing for a final project. May be repeated once for credit. Letter grading.

**407. Video Documentary Workshop (8)** Laboratory, 12 hours. Limited to graduate film and television students. Exploration of documentary video, including screening variety of international works and producing short documentary project using single-camera field production techniques. S/U or letter grading.

**408A. Avid Editing 1 (4)** Studio, four hours; laboratory, to be arranged. Individual instruction in Avid nonlinear editing system. S/U or letter grading.

**408B. Avid Editing 2 (4)** Studio, four hours; laboratory, to be arranged. Individual instruction in Avid nonlinear editing system. S/U or letter grading.

**409. Directing Actors for Camera Workshop (4)** Workshop, six hours; laboratory, to be arranged; laboratory preparation, two to four hours. Limited to MFA production program students. Team-taught with five weeks designed to give director actor/camera techniques, and five weeks to offer basic strategies to elicit good performances from actors. Emphasis on problems faced when directing actors for film. S/U or letter grading.

**410A. Symposium (2)** Seminar, three hours. Limited to and required of first-year MFA production program students. Exploration of principal concepts of film and television production within context of preproduction, production, and postproduction, providing forum for synthesis of knowledge gained in various first-year technical craft courses. Exploration of strategies for learning production within academic environment. May be repeated for credit. Letter grading.

**410B. Cinematography (2)** Seminar, three hours. Limited to and required of first-year MFA production program students. Production workshop designed to give hands-on experience in all aspects of film production (tools and practicum of medium) as each student writes/directs/edits six-minute film. May be repeated for credit. Letter grading.

**410C. Postproduction (2)** Seminar, three hours. Limited to and required of first-year MFA production program students. Production workshop designed to give hands-on experience in all aspects of film production (tools and practicum of medium) as each student writes/directs/edits six-minute film. May be repeated for credit. Letter grading.

**410D. Postproduction Sound (2)** Seminar, three hours. Requisites: courses 405, 409. Limited to and required of first-year MFA production program students. Technical and aesthetic aspects of postproduction sound recording, editing, and rerecording for film and television. Application of principles of sound design to student films while using UCLA's John Candy Room and Scoring Stage for Automatic Dialogue Replacement (ADR), Foley, and mixing. Use of Pro Tools LE for recording, editing, and mixing, selection and use of microphones and mixing consoles, and incorporation of Final Cut Pro soundtracks into mix environment. Students record ADR and Foley and present mix of edited dialogue/ADR, Foley, sfx, and music tracks by end of term. Letter grading.

**410E. Production (12)** Lecture, three hours; fieldwork, 24 to 40 hours. Requisites: courses 401, 409, 410A through 410D. Limited to and required of first-year MFA production/directing students. Designed to give hands-on experience in film production. Students prepare and direct six-minute films and serve in preassigned crew positions for each other. Letter grading.

**411A. Modes of Making: Experimental (4)** Seminar, three hours; laboratory, one hour. Exploration of multiple and alternative modes of filmmaking and platforms for creative expression. Students are exposed to wide variety of media types and invited to undertake their own experiments, paying equal attention to form and content. Each student completes series of small-scale, low-tech, low-stakes film projects designed to fuel curiosity and open creative pathways, while also developing sense of community and learning to offer and accept feedback that is both supportive and challenging. Letter grading.

**411B. Modes of Making: Documentary (4)** Lecture, three hours; laboratory, one hour. Exploration of craft and form of documentary filmmaking through series of synchronous and asynchronous film projects. Viewing, discussion, and practicing of interview, vérité, animated, and hybrid documentary approaches. Students work in partnerships and small crews to rotate and produce work in collaboration. Contemporary debates around documentary representation and film ethics are incorporated into classroom discussions and critiques. Letter grading.

**411C. Modes of Making: Narrative Fiction (8)** Lecture, four hours; laboratory, four hours. Students work individually and in teams to complete small-scale film projects and exercises to develop specific building blocks needed for narrative fiction filmmaking. Course modules provide introduction to each element of narrative filmmaking, from preproduction to completion. Students gain experience with each key crew position and develop basic collaborative skills needed to work effectively with—and as part of—film crew. Letter grading.

**412A. Tools and Techniques: Editing I (4)** Laboratory, three hours. Technical and aesthetic components of editing. Basic instruction in use of editing hardware and software. Deepening knowledge of requisite editing software and hands-on skills needed for editing in non-fiction mode. Training in digital workflow and duties and responsibilities of digital imaging technician and assistant editor. Letter grading.

**412B. Tools and Techniques: Editing II (4)** Laboratory, three hours. Advances understanding of video editing process and of Avid Media Composer software. Material covered is in support of projects created in courses 411B and 411C. Includes screenings concentrating on editing techniques. Letter grading.

**412C. Tools and Techniques: Editing III (4)** Laboratory, three hours. Offers hands-on support and technical knowledge in editing for students in parallel with their crew-based productions in course 411C. Advanced-level training in use of requisite editing software; and deepening skills in digital workflow, color grading, and final output. Focus on practical skill development, with hands-on practices always contextualized and motivated by creative and conceptual goals. Letter grading.

**413A. Tools and Techniques: Sound I (4)** Laboratory, three hours. Theory and technique behind production sound and field recording including operation of Sound Devices MixPre-6 audio recorder, and use of wired and wireless microphones and boom poles. Students also learn vocabulary and theory about how sound is experienced, and how those experiences can be translated into creative context. Students listen to and record audio without visual component, then acquire tools and techniques to prepare for documentary work. Letter grading.

**413B. Tools and Techniques: Sound II (4)** Laboratory, three hours. Theory and technique behind production sound and field recording including operation of Sound Devices MixPre-6 audio recorder, and use of wired and wireless microphones and boom poles. Students also learn vocabulary and theory about how sound is experienced, and how those experiences can be translated into creative context. Students take a finished short film through a complete post-production sound process, from spotting to a finished mix. Students finish films completed in course 411B through a similar process. Development of hands-on skills needed for the craft of media making in a narrative fiction mode. Letter grading.

**413C. Tools and Techniques: Sound III (4)** Laboratory, three hours. Advanced exercises in the theory and technique behind production sound and field recording, including operation of Sound Devices MixPre-6 audio recorder, and use of wired and wireless microphones and boom poles. Students take a finished short film through a complete post-production sound process, from spotting to a finished mix. Students finish films completed in course 411C through a similar process. Letter grading.

**414A. Tools and Techniques: Cinematography I (4)** Laboratory, three hours. Introduction to design elements of cinematography with special emphasis on support for course 411A. Tools and techniques required for motion picture capture including lens choice, camera settings, composition, movement, lighting design, and color design to use as visual art forms. Assignments train students on proper set etiquette and production procedures, as well as allow for experimentation and technical growth. Experimental films are more often transformed in post-production process, requiring an open-minded approach

for filmmaking in this course. Hands-on exercises and workshops of increasing complexity designed to understand skills used for visualizing and executing design, compositional balance, and exposure of cinematographic storytelling. Study of documentary filmmaking techniques such as vérité filmmaking, documentary coverage, and interview setups. Exploration of simple lighting concepts for documentary. Creation of micro- and short-form experimental and documentary films in variety of aesthetic and conceptual modes. Letter grading.

**414B. Tools and Techniques: Cinematography II (4)** Laboratory, three hours. Introduction to design elements of cinematography. Tools and techniques required for motion picture capture including lens choice, camera settings, composition, movement, lighting design, and color design to use to document a variety of events. Assignments train students on proper field production etiquette and procedures, as well as allow for experimentation and technical growth. Hands-on exercises and workshops of increasing complexity designed to understand skills used for visualizing and executing design, compositional balance, and exposure of cinematographic storytelling. Development of hands-on skills needed for the craft of media making in a fiction mode including basic camera, lighting, and production techniques for shooting scripted scenes. Creation of micro- and short-form documentaries and scripted scenes in a variety of aesthetic and conceptual modes. Letter grading.

**414C. Tools and Techniques: Cinematography III (4)** Laboratory, three hours. Introduction to design elements of cinematography with special emphasis on supporting course 411C. Study of preproduction visualization tools and techniques for cinematographers with emphasis on lighting, lens, camera, composition, movement, and color design. Assignments train students on proper field production etiquette and procedures, as well as allow for experimentation and technical growth. Hands-on exercises and workshops of increasing complexity designed to understand skills used for visualizing and executing design, compositional balance, and exposure of cinematographic fiction storytelling. Letter grading.

**415. Themes and Issues: Foundations of Directing (4)** (Formerly numbered 413.) Seminar, three hours. Provides intellectual and creative toolkit for subsequent undertakings in filmmaking, media making, and audio-visual storytelling. These source materials are agnostic with regard to certain questions of origin (genre, nation, format, portal, duration) and yet deeply rooted in politics and histories of representation that catalyze and inform racial, gendered, sexual, and ethnic lenses and visions. Letter grading.

**C416. Intermediate Cinematography (4)** Lecture, two hours; laboratory, four hours. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. Concurrently scheduled with course C118. Letter grading.

**C417. Lighting for Film and Television (4)** Lecture, two hours; laboratory, six hours. Limited to graduate film and television students. Lectures, supervised exercises on stage or in exterior, screenings of scenes, and discussions aimed at learning to master lighting to create appropriate mood or atmosphere of premeditated scene recorded on film or through electronic system. May be repeated twice for credit. Concurrently scheduled with course C157. Letter grading.

**418. Cinematography and Directing (4)** Lecture, two hours; laboratory, six hours. Requisite: course 417. Limited to graduate film and television students. Supervised filming of short dramatic projects on sound stage and at exterior locations that explore complexity of process, emphasizing balance and collaboration essential to both directing and photography in its varied technical, production, and creative aspects. Letter grading.

**419. Advanced Cinematography (4)** Lecture, two hours; discussion, one hour; laboratory, one hour. Requisites: courses 417, 418. Limited to graduate film and television students. Advanced study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. S/U or letter grading.

**C420. Digital Cinematography (4)** Lecture, three hours. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. Concurrently scheduled with course C120. Letter grading.

**423A. Direction of Actors for Film and Television (4)** Lecture, four hours; laboratory. Preparation: first film project. Limited to graduate film and television students. Required of all production majors shooting fiction thesis. Exercises in analysis of script and character for purpose of directing actors in film and television productions. Emphasis on eliciting best possible performance from actors. May be repeated twice for credit. S/U or letter grading.

**423B. Advanced Direction of Actors for Film and Television (4)** Studio laboratory, six hours. Requisite: course 423A. Limited to graduate film and television students. Advanced study and practice of directing actors before camera.

Emphasis on developing techniques to immediately enhance communication between director and actor on set in order to maintain continuity from shot to shot. S/U or letter grading.

**430. Introduction to Film and Television Writing (6)** Lecture, three hours. Introduction to film and television writing. S/U or letter grading.

**433. Writing Short Screenplays (4)** Lecture, three hours. Limited to and required of first-year MFA production program students. Conception, development, and writing of six-minute dramatic film script to be produced in courses 410A, 410B, 410C. Letter grading.

**434. Advanced Screenwriting (8)** Seminar, three hours. Enforced requisite: course 430. Advanced problems in writing of original film and television screenplays. May be repeated for credit. Letter grading.

**435. Advanced Writing for Short Film and Television Screenplays (4)** Discussion, three hours. Requisite: course 410C. Limited to graduate film and television students. Conception, development, and writing of dramatic film script to be produced as advanced or thesis project. Letter grading.

**437. Adaptation for Screen (8)** Seminar, three hours. Enforced requisite: course 430. Students analyze techniques of dramatic adaptation and apply them by writing their own scripted adaptations. Students read selected texts and view their filmed versions in order to learn various approaches to adaptation. Students workshop their own screenplays adapted from preselected list of stories. Letter grading.

**438. Advanced Screenwriting: Rewrite (8)** Seminar, three hours. Enforced requisites: courses 430, 434. Workshop in which students rewrite first draft of original screenplay that was written in course 434. Discussion of problems particular to rewrites: how to take notes and make them one's own; how to do deep-read on line-by-line basis of script; overall rewriting strategies; what is best for situation and script. Reading and discussion of student rewrites. Particular attention directed to how people talk about scripts that are not their own; how they avoid giving feedback based on how they might write something and how they move toward giving feedback that honors intention and integrity of script. May be repeated once for credit. Letter grading.

**440. Festival Strategies (4)** Seminar, three hours. Exploration of film, television, streaming, and specialized festivals. Emphasis on strategies and practical knowledge necessary to navigate local, regional, and global festivals, whether as producer, director, animator, screenwriter, or scholar/programmer. Dialog and exchange of diverse ideas, perspectives and real-world experiences among students, faculty, and special industry guests. S/U or letter grading.

**451. Advanced Design for Film and Television (4)** Laboratory, to be arranged. Limited to graduate film and television students. Advanced study and practice of techniques and methods of design for motion pictures. Art direction for advanced workshop productions. May be repeated for maximum of 12 units. S/U or letter grading.

**452B. Postproduction Sound (2)** Laboratory, three hours. Limited to Production MFA students. Technical and aesthetic aspects of postproduction sound recording, editing, and rerecording for film and television. Letter grading.

**C452C. Digital Audio Postproduction (4)** Lecture, three hours; laboratory, three hours. Limited to Film and Television majors. Through discussion, demonstrations, and laboratory assignments, exploration of digital audio tools and procedures available to today's filmmakers. Coverage of many technical, equipment, and software step-by-steps, with emphasis on creative process. Concurrently scheduled with course C152C. Letter grading.

**453. Postproduction Sound Design. (2 to 4)** Lecture, three hours. Designed to give film students insight into world of postproduction sound and to provide knowledge and tools necessary to complete postwork on their projects. Exploration of all areas of postproduction sound design from editing to final mixing. How to effectively use sound design to enhance storytelling capability of films, evaluate music choices, pick composer, music edit, create sound design to enhance story points, discover design opportunities, and select right sound effects. How to edit dialogue, prep for Automatic Dialogue Replacement and Foley sessions, and supervise final sound mix. Screening of numerous film clips to provide examples of postsound choices that demonstrate effective use of sound design. S/U or letter grading.

**C454B. Advanced Film Editing (4)** Lecture, three hours; laboratory, one hour. Preparation: submission of rough cut of existing project or proposal to edit work of another director. Limited to film and television students in postproduction phase with advanced knowledge of organization and operation of postproduction process. Students may also propose to edit significant scene given to them by instructor. Concurrently scheduled with course C154B. Letter grading.

**C454C. Digital Workflow. (2 to 4)** Lecture, three hours; laboratory, two hours. Limited to departmental majors. Through discussions, demonstrations, outside speakers, and laboratory assignments, demystification of ever-changing

world of digital workflow. Students plan, schedule, and budget their overall workflow in preproduction. May be repeated once for credit. Concurrently scheduled with course C158. Letter grading.

**459A. Directing for Film and Television (4)** Lecture, three hours. Limited to graduate film and television students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in theater, film, and television. S/U or letter grading.

**459B. Directing for Film and Television (4)** Lecture, three hours. Limited to graduate film and television students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in theater, film, and television. S/U or letter grading.

**464A. Advanced Film Directing (8)** Studio, to be arranged. Limited to graduate film and television students. Special problems in direction of fictional and documentary films. S/U or letter grading.

**464B. Advanced Film Directing (8)** Studio, to be arranged. Limited to graduate film and television students. Special problems in direction of fictional and documentary films. S/U or letter grading.

**465. Narrative Television Workshop (8)** Laboratory, eight hours. Supervised exercises in television multicamera direction, with emphasis on creative use of composition and sound, and communication with those in front of and behind camera. Letter grading.

**C468. Creative Location Film Production (8)** Lecture, four hours; discussion, four hours; laboratory, to be arranged. Limited to directing or producer's program students. Problems of location, production, directing, and cinematography in various real-life practical locations. Practical application of solving problems and communication within limitations of production experience. Concurrently scheduled with course C168. Letter grading.

**469. Contemporary Topics: UCLA Filmmakers (4)** Seminar, two hours. Analysis of films made both outside and within traditional studio system, identification of materials and tools utilized to such purposes, exploration of story and themes of works within larger political and cultural framework, and development and articulation of personal storytelling voice rooted in specifics of history, background, and life experience. Designed as series of online master classes with visiting filmmakers, their collaborators, and occasional guest scholars participating in moderated discussions. Each class concludes with informal discussion with students. Weekly contextual readings and screenings. S/U or letter grading.

**472. Commercials (4)** Lecture, four hours. Limited to MFA students. Designed to give students opportunity to explore one very specific kind of filmmaking. Through exploration of advertising, students gain knowledge about what kind of work is salable in American and foreign markets and how to work within distinct confines of commercial genre. Letter grading.

**480. Timing for Animation (4)** Lecture, three hours; laboratory, three hours. Process of animation timing through lectures and assignments. Letter grading.

**C481A. Introduction to Animation (5)** Lecture, three hours; laboratory, three hours. Drawing experience not required. Fundamentals of animation through preparation of short animated film. Concurrently scheduled with course C181A. S/U or letter grading.

**C481B. Writing for Animation. (4, 8)** Lecture, six hours; studio, to be arranged. Requisite: course C481A or consent of instructor. Research and practice in creative writing and planning for animated film. May be repeated for maximum of 16 units. Concurrently scheduled with course C181B. S/U or letter grading.

**C481C. Animation Workshop. (4, 8)** Studio, six hours. Preparation: storyboard at first class meeting. Requisite: course C181A. Organization and integration of various creative arts used in animation to form complete study of selected topic. May be repeated for maximum of 16 units. Concurrently scheduled with course C181C. S/U or letter grading.

**482A. Advanced Animation Workshop. (4, 8)** Lecture, three hours; studio, to be arranged. Requisites: courses 181A, 181B, 181C. Advanced organization and integration of various creative arts used in animation, resulting in production of complete animated film. May be repeated for maximum of 16 units. S/U or letter grading.

**482B. Advanced Animation Workshop. (4, 8)** Lecture, three hours; studio, to be arranged. Requisites: courses 181A, 181B, 181C. Advanced organization and integration of various creative arts used in animation, resulting in production of complete animated film. May be repeated for maximum of 16 units. S/U or letter grading.

**483A. Advanced Computer Animation. (4 to 8)** Lecture, six hours; laboratory, four hours. Requisites: courses C481A, C481C, 489A. Recommended: course C481B. Course 483A is requisite to 483B, which is requisite to 483C. Creation and production of complete and original advanced computer animated film. Letter grading.

**483B. Advanced Computer Animation. (4 to 8)** Lecture, six hours; laboratory, four hours. Requisite: course 483A. Creation and production of complete and original advanced computer animated film. Letter grading.

**483C. Advanced Computer Animation. (4 to 8)** Lecture, six hours; laboratory, four hours. Requisite: course 483B. Creation and production of complete and original advanced computer animated film. Letter grading.

**484A. Visual Thinking and Organization for Animation (4)** Lecture, six hours; laboratory, four hours. Course 484A is requisite to 484B. Systematic approach to analyzing and communicating two-dimensional and three-dimensional form and applying traditional compositional approaches to animation. May be repeated for maximum of 16 units. Letter grading.

**484B. Visual Thinking and Organization for Animation (4)** Lecture, six hours; laboratory, four hours. Requisite: course 484A. Systematic approach to analyzing and communicating two-dimensional and three-dimensional form and applying traditional compositional approaches to animation. May be repeated for maximum of 16 units. Letter grading.

**485. Legal Issues in Animation (4)** Lecture, three hours; laboratory, three hours. Examination of legal issues in animation, including copyright, contracts, constitutional issues in animation, competing rights, employer/employee relationships, and representation in animation. S/U or letter grading.

**486. Directed Individual Study: Preparation to Advance to Candidacy for MFA in Production. (2 to 4)** Tutorial, four to eight hours. Limited to MFA production program students. Specialized development and organization of proposed thesis project prior to advancement to candidacy. Should be taken term before student plans to advance to candidacy. S/U or letter grading.

**487. Directed Individual Study: Postproduction Laboratory (4)** Laboratory, eight hours. Limited to MFA production program students. Completion of projects in final stages of postproduction. May not be repeated. S/U or letter grading.

**488A. Interactive Animation. (4 to 8)** Lecture, six hours; laboratory, to be arranged. Requisites: courses C481A, C481C, 489A. Organization and integration of various creative arts used in animation and interactive media to form complete study of selective interactive animation project. May be repeated for maximum of 16 units. Letter grading.

**488B. Advanced Interactive Animation. (4 to 8)** Lecture, six hours; laboratory, to be arranged. Requisite: course 488A. Organization and integration of various creative arts used in animation and interactive animation to form completed project of selected interactive topic. May be repeated for maximum of 16 units. Letter grading.

**489A. Computer Animation in Film and Video. (4 to 8)** Lecture, six hours; laboratory, four to eight hours; other, to be arranged. Preparation: completed animated film. Requisites: courses 181A, 181C. Instruction in and supervised production of computer animation. May be repeated for maximum of 16 units. Letter grading.

**489B. Production in Computer Animation. (4 to 8)** Lecture, six hours; laboratory, four to eight hours. Requisite: course 489A. Instruction in creation, preparation, and production of complete and original computer animation film or tape. May be repeated for maximum of 16 units. Letter grading.

**495A. Practice of Teaching Film and Television (2)** Seminar, three hours. Required of all teaching assistants and associates in critical studies program. Orientation and preparation of graduate students who have responsibility to assist in teaching undergraduate courses in department; discussion of problems common to teaching experience. S/U grading.

**496. Practice of Teaching Film and Television (2)** Discussion, two hours. Required once of all teaching assistants and associates in department. Orientation and preparation of graduate students who have responsibility to assist in teaching undergraduate courses in department; discussion of problems common to teaching experience. May not be applied toward MA, MFA, or PhD. May be repeated. S/U grading.

**498. Professional Internship in Film and Television. (4 to 12)** Tutorial, to be arranged. Full- or part-time at studio or on professional project. Designed for MFA program advanced students. Internship at various film, television, or theater facilities accentuating creative contribution, organization, and work of professionals in their various specialties. Given only when projects can be scheduled. S/U or letter grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596A. Directed Individual Studies: Research. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596B. Directed Individual Studies: Writing. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596C. Directed Individual Studies: Directing. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596F. Directed Individual Studies: Production. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May be repeated with consent of instructor. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations in Film and Television. (2 to 12)** Tutorial, to be arranged. May be taken for maximum of 12 units. S/U grading.

**598. MA Thesis in Film and Television. (2 to 12)** Tutorial, to be arranged. Preparation: advancement to MA candidacy. Research and writing for MA thesis. May be taken for maximum of 12 units. S/U grading.

**599. PhD Dissertation in Film and Television. (2 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Research and writing for PhD dissertation. May be repeated. S/U grading.

# Food Studies

## Food Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**27. Critical Thinking about Food and Science Publications (5)** Lecture, two hours; discussion, one hour. Development of process of further thinking about stories behind conclusions from nutrition studies and food scientific literature. Exercises, discussions, reports, and readings designed to provide practices to become critical thinker in food science and literature. P/NP or letter grading.

**35. Visual Representations of Food from Antiquity to Present (5)** Lecture, three hours; discussion, one hour. Examination of food imagery in visual art from antiquity to present. Introduction to many major movements in Western art history, with primary focus on historical and sociological implications that can be derived from close analysis of visual representations of food, kitchens, markets, and agriculture over centuries. Topics of investigation include diets of ancient Romans as evidenced by floor mosaics and wall paintings of Pompeii; religious symbolism of food during Middle Ages; opulence of Renaissance banquets; common food of common folk; significance of still life paintings; what paintings can tell us about trade; turn-of-century tables; food and eroticism; economics, packaging, and advertising; and food presentation and plating as art form. P/NP or letter grading.

**79. Food Politics: Cultural Solutions to Political Problems (5)** (Same as World Arts and Cultures M79.) Lecture, four hours; discussion, one hour. Examination of issues of environmental and public health effects of intensive and extensive agriculture, influence of corporations on government, animal ethics, food deserts and urban gardening, and food insecurity. Focus on representation of such issues in documentaries, public lectures, memoirs, novels, and visual art, as well as on initiatives to address such problems through policy and activism. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M132. Food Cultures and Food Politics (5)** (Same as English M118F and Society and Genetics M132.) Lecture, four hours; discussion, one hour (when scheduled). Prerequisite: English Composition 3. Introduction to interdisciplinary field of food studies, with focus on how literature, art, science writing, and visual culture address political dimensions of food and agriculture in specific contexts. P/NP or letter grading.

**133W. Historical Recipes and Recipe for History (5)** Lecture, two hours; discussion, one hour. Prerequisite: English Composition 3. Exploration of historical meaning of food in late Medieval and Early Modern Europe through lens of recipes. How recipes, as historical documents, are related to culture, social interactions, and historical ways of knowing. Introduction to ways that historians attempt to understand and recreate rhythms of daily life through interactive pedagogy and experimental recreation of historical recipes. Students gain working knowledge of food studies as interdisciplinary field from historical perspective. Research project documenting original research. Satisfies Writing II requirement. P/NP or letter grading.

**136. Eating Society: Science and Politics of Food from Individual to Planetary Health (4)** (Same as Society and Genetics M136 and Sociology M136.) Lecture, three hours; discussion, one hour. Questions of food and health are both individual and social. Students gain tools for understanding relationships between individual eaters, medicine, and social organization of food production and processing through set of research frameworks newly emergent in range of social and health sciences. Topics include individual and social ramifications of microbiome science; understanding how human gut microbes and health are shaped by pasteurization, processing, and food safety practices; One Health approaches that encompass human and animal health, discussing examples such as antibiotic resistance and emerging infectious disease as effects of large-scale agriculture; planetary health frameworks that link individual human metabolic health to issues of sustainable agriculture, for example how pesticides and fertilizers tie diets to environments; and resilience of cultural food systems in face of environmental pollution as issue of reproductive health. Letter grading.

**142. Introduction to Cellular Agriculture (4)** Lecture, three hours; discussion, one hour (when scheduled). Introduction to cellular agriculture as it relates to generating ex vivo edible animal proteins of meat, fish, dairy, and other products from cells. Topics include exploration of food production methods and impacts to the environment. Other topics may include human health, conventional animal agriculture and food cultivation, developing food technologies and methods, food safety regulations, and socio-cultural frameworks. P/NP or letter grading.

**157. Food: Molecules, Microbes, Environment (4)** (Same as Chemistry M157.) Lecture, three hours; discussion, one hour. Prerequisite: Chemistry 153A. Recommended requisites: Life Sciences 7A, 7B. Study of science of food. Study of food units physical, biological, environmental, social, and behavioral sciences. Use of scientific concepts to explain properties of food. Covers range of topics that focus on science of cooking, critical role of microbes in transformation of foods, genetic and environmental concerns related to acquisition of food, and impact of different dietary systems on metabolism and physiology. Comprises four major interrelated topics: molecules of food and their sources, science of cooking, acquisition of food, eating. P/NP or letter grading.

**159. Food and Health in Global Perspective (4)** Lecture, three hours. Not open to students with credit for Society and Genetics 134. Study problematizes and adds depth to common-sense understandings of healthy and unhealthy consumption by examination of relationship between food and health, from critical and holistic perspective, that accounts for interplay of biology and culture within broader historical, societal, and global contexts. Topics include what is meant by health, especially in terms of diet; relationship between food practices and evolutionary biology, as well as particular environments of societies, cultural systems, histories, and their health implications; how major global foods have come to their dominance and consequences for health; and influences of food production, distribution, and preparation on health. P/NP or letter grading.

**167. Historical Sociology of Urban/Rural Relations and Food Production (4)** (Same as Sociology M137.) Lecture, three hours; discussion, one hour. Historical examination of food supply and food production in relation to urban and rural regions. Topics include food logistics such as storage, transportation, and distribution, as well as human population growth and migration, famine and hunger, and agricultural advances and environmental impacts. P/NP or letter grading.

**170XP. Food Studies and Food Justice in Los Angeles (4)** (Formerly numbered M170SL.) (Same as Community Engagement and Social Change M170XP.) Seminar, three hours; fieldwork, two hours. Interdisciplinary service learning course that provides general understanding of access and equity issues related to food chain in Los Angeles. Exploration of social justice issues faced by residents of lower-income communities. Reading of research from multiple disciplines, including but not limited to public health, environmental justice, and public policy. Service-learning component includes meaningful work with off-campus community partners selected in advance by instructor and Center for Community Learning. Letter grading.

**176XP. Making Films about Food (5)** (Formerly numbered M176SL.) (Same as Community Engagement and Social Change M176XP and Public Affairs M176XP.) Lecture, three hours. Introduction to documentary video production and distribution. Students work on assignments in pairs and small groups to create 8- to 10-minute video about one of several Los Angeles partner organizations that advocate for healthy, local, sustainable food. Consideration, through video production, of challenges posed by existing farming, ranching, and distribution methods, and strategies these groups are pursuing to create more sustainable food pathways. Students look at social media communication strategies to help think through intervention in face of historically entrenched industrial food production and regulations that remain favorable to mass-produced, processed food items. P/NP or letter grading.

**177. Superfoods: Cultural and Global Perspectives (4)** (Same as Global Studies M177 and International Development Studies M177.) Seminar, four hours. Exploration of superfoods, which are nutrient rich foods considered beneficial for well-being, health, and longevity, as they are high in minerals, vitamins, and antioxidants. While superfoods have been part of cultures' diets for centuries, in recent decades they have been researched in scientific and medical communities. Citizens globally have begun to increasingly demand and consume foods that are nutritious, organic, and sustainable. It is important also to address issues such as marketing, misinformation, and hyper about superfoods. Surge of interest in superfoods is increasingly important in context of ongoing global inequities with regards to food access and production. Study addresses paradox that communities cope simultaneously with malnutrition/hunger and obesity, and how farming practices for superfoods and staple crops are related. P/NP or letter grading.

**179. Food Activism in Los Angeles: Narrating Pasts, Imagining Futures (4)** (Same as World Arts and Cultures M179.) Lecture, two hours; discussion, two hours. Introduction to history and praxis of local interventions into food insecurity and food oppression, such as community gardens, pop-up markets, and care farms. Through ethnographic and oral history methodologies, students learn how food activists organize themselves, and mobilize creativity to counteract injustice. Focus on relationships between food access, food oppression, food politics, and food ethics; and social histories of race, class, urban planning, and housing discrimination. P/NP or letter grading.

**181. Special Topics: Perspectives on Food and Society (4)** Lecture, 90 minutes; discussion, one hour. Variable topics that engage with current societal challenges through lens of food and transdisciplinary approach. Emphasis on food-related issues that impact society from social justice to food access to planetary health. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**187. Special Topics in Food Studies (4)** Lecture, three hours. Variable topics in one area within food studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195C. Community and Corporate Internships in Food Studies for Capstone (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning (CCL). Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Fulfills capstone experience requirement for Food Studies minor. Individual contract with site supervisor, CCL coordinator, and faculty sponsor required. Letter grading.

**195CE. Community and Corporate Internships in Food Studies (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

**196. Research Apprenticeship in Food Studies (4)** Tutorial, one hour. Entry-level research apprenticeship under guidance of faculty mentors affiliated with Food Studies minor. Collaboration with faculty mentors on their research in area related to food studies. May be repeated for credit. Individual contract required. Letter grading.

**197. Individual Studies in Foodways, Diet, and Nutrition(2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Food Studies (4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research projects in food studies under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Gender Studies

## Gender Studies Courses

### Lower Division

**10. Introduction to Gender Studies (5)** Lecture, three hours; discussion, one hour. Introduction to key concepts in study of sex and gender. Exploration of topics such as gender socialization, body image, sexualities, masculinities, and women's subordination. Special emphasis on interaction of gender with other identity markers such as race, nation, ethnicity, sexuality, class, and other differences. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101W. Writing Gender (5)** Lecture, three hours. Requisite: English Composition 3. Development of critical reading and writing skills necessary for academic success. Students engage assigned readings in conversation with week's leading question. Generation and continuous development of paper topic as result of in-class discussions and formal writing exercises. Small writing groups assist students in understanding relationship between how written thoughts are presented and how they are comprehended by different readers. Students gain understanding of writing process, including topic conceptualization, objective of writing project, organization of thoughts and resources, selection of objects of study, personal writing style, etc. Satisfies Writing II requirement. Letter grading.

**102. Power (4)** Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 10. Consideration of how feminist social movements have identified and challenged gender-based subordination and ways feminist theorists have conceived and critiqued traditional theories of power. How have women's and other social movements defined and challenged social, political, and economic subordination? How have feminist theorists addressed subject of power? How do empire, colonialism, liberalism, neoliberalism, and globalization produce distinctive forms of gendered violence, gendered knowledge, and gendered subjectivities? How are gender and sexuality produced and regulated by law, nation, and economy? P/NP or letter grading.

**103. Knowledge (4)** Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 10. Exploration of social production of knowledge about gendered subjects and gender systems. Students engage key issues in feminist theory and feminist epistemology. How do feminist scholars identify and frame research questions? How is knowledge about marginalized subjects produced? How has feminism challenged dominant understandings of knowledge, rationality, objectivity, and scientific method? How have social movements sought to challenge traditional modes of knowledge production? P/NP or letter grading.

**104. Bodies (4)** Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 10. Exploration of scholarly theories and histories of body, with focus on topics such as sex identities, sexuality, gendered violence, and reproductive politics. How has science, medicine, and culture sought to distinguish male from female in different historical periods and locations? How have meanings of terms sex and gender varied across time and

place? How has gendered body been represented in different visual cultures? How have embodied identities been produced in different historical and geographic contexts? What is relationship between embodiment and desire? P/NP or letter grading.

**104C. Diversity in Aging: Roles of Gender and Ethnicity (4)** (Same as Chicana/o and Central American Studies M106B, Gerontology M104C, Public Affairs M131, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

**105. Topics in Women and Medicine (4)** Lecture/discussion, three hours. Examination of medical conditions of women in context of issues that impact women's health, healthcare, and healthcare providers. Discussion of basic health concepts and self-care; consideration of a women's health speciality and ways to deliver healthcare to women. Exploration of roles and lifestyles of female physicians. P/NP or letter grading.

**105A. Premodern Queer Literatures and Cultures (5)** (Same as English M101A and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Survey of discrete period of queer literature from beginning to circa 1850. Works by such writers as Sappho, Plato, Marlowe, Shakespeare, and Thomas Gray may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105B. Queer Literatures and Cultures, 1850 to 1970 (5)** (Same as English M101B and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Survey of discrete period of queer literature and culture from circa 1850 to 1970. Works by such authors as Walt Whitman, Radclyffe Hall, Gertrude Stein, Virginia Woolf, Langston Hughes, Tennessee Williams, Henry Blake Fuller, and James Baldwin may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105C. Queer Literatures and Cultures after 1970 (5)** (Same as English M101C and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Examination of cultural production, specifically literature, produced by queers after Stonewall rebellion in New York in 1969, widely regarded as origins or beginning of modern lesbian and gay rights movement in U.S. Writings and films by such authors as Andrew Holleran, Leslie Feinberg, Achy Obejas, Essex Hemphill, Audre Lorde, Cheryl Dunye, and Alison Bechdel may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**105D. Studies in Queer Literatures and Cultures (5)** (Same as English M101D and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M101D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Variable specialized studies course in queer literatures and cultures. Topics focus on particular problem or issue in terms of its relationship to queer cultures and writings. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**106. Imaginary Women (5)** (Same as Honors Collegium M106.) Seminar, four hours. Designed for juniors/seniors. Study of four female cultural archetypes—absconding wife/mother, infanticide mother, intellectual woman, and warrior woman—as they appear in their classical and modern manifestations in European and American cultures. P/NP or letter grading.

**107A. Studies in Women's Writing (5)** (Same as English M107A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Focus on women writers that may include historical, regional, national, or thematic emphasis, with possible topics such as authorship, self-writing, sexuality, gender, and genre. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**107B. Studies in Gender and Sexuality (5)** (Same as English M107B and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M107B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Examination of literary and cultural production through lens of gender and sexuality. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic and include other intersectional vectors of identity and representation such as race and ethnicity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**108S. Violence against Women (4)** Lecture, three hours. Requisite: course 10. Factual information and theoretical analyses regarding various forms of violence against women and girls in their homes, workplaces, and communities through critical examination of social structures and social science research. Letter grading.



**109. Women in Jazz (4)** (Same as African American Studies M109, Ethnomusicology M109, and Global Jazz Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

**110C. Topics in Feminist Philosophy: Metaphysics and Epistemology (4)** (Same as Philosophy M187.) Lecture, three hours; discussion, one hour (when scheduled). Requisite for Gender Studies majors: course 10; for other students: one philosophy course. Examination in depth of different theoretical positions on gender and women as they have been applied to study of philosophy. Emphasis on theoretical contributions made by new scholarship on women in philosophy. Critical study of concepts and principles that arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor. P/NP or letter grading.

**111. Women and Film (6)** (Same as Film and Television M111.) Lecture, eight hours; discussion, one hour. Historical issues and critical approaches to women and cinema that may include authorship, stardom, female genres, and images of women in Hollywood cinema, alternative cinema, and independent cinema from silent era to present. Letter grading.

**112. Special Topics in Women and Arts (4)** Lecture, three hours. Requisite: course 10. Selected topics relating feminist theories to creation of art by women, with consideration of cultural contexts in which they work. Approach to be comparative, cross-cultural, and interdisciplinary. Consideration of artistic practice by women in relation to issues of power, representation, and access. May be repeated twice, except for credit toward Gender Studies major. P/NP or letter grading.

**113. Sex Work (4)** Lecture, three hours. Enforced requisite: course 10. Analysis of variety of contemporary sex work both in U.S. and abroad from feminist perspective. Examination of how race, class, and gender alter experience and perception of erotic labor, and consideration of critically feminist responses by range of authors to sex work. Topics include brothels, phone sex, strip clubs, sex tourism, military prostitution, and international traffic in persons. Reading of texts by sex workers, as well as articles from current philosophical and policy debates about prostitution. P/NP or letter grading.

**114. Introduction to Lesbian, Gay, Bisexual, Transgender, and Queer Studies (5)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, transgendered, and queer people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

**115. Topics in Study of Sexual and Gender Orientation (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M115.) Lecture/discussion, three hours. Requisite: course 10 or M114. Studies in arts, humanities, social sciences, and/or life sciences on aspects of sexual orientation, gender identity, and lesbian, gay, and/or bisexual issues; variable topics may include cultural representations, historical and political change, life and health experiences, and queer or transgender theories; multiethnic and cross-cultural emphases. May be repeated for credit. Letter grading.

**116. Sexuality and City: Queer Los Angeles (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles. Letter grading.

**117. Introduction to Queer Latina/Latino Studies (4)** Lecture, three hours. Examination of production of Latina/Latino identity and its limitations as it emerges within contemporary literature, music, film, and performance art. Engagement with texts that posit queer analytical approach to study how Latinidad is informed by modes of desire and identification that fall out of dominant notions of Latino in popular culture. Critical engagement of limits of knowledge production around Latina/Latino identity to develop new analytics that abide by question of Latinidad rather than posit answer or solution to its political consequences in contemporary U.S. culture. Study draws upon feminist and queer artists such as Ana Mendieta, Nao Bustamante, Asco, Carmelita Tropicana, Gloria Anzadúa, Felix-Gonzales Torres, Gil Cuadros, and Gregg Araki. P/NP or letter grading.

**118. Queering American History (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M118.) Lecture, four hours. Enforced requisite: one prior lesbian, gay, bisexual, transgender, and queer studies course. History of sexual and gender minorities in U.S. Topics include changing norms, romantic friendships, medical discourse, liberation politics, post-Stonewall culture, AIDS, transgender movement, queer theory, and politics. P/NP or letter grading.

**119. Racial Violence and Law (4)** Lecture, three hours. Requisite: course 10. Through feminist, anti-colonial, and anti-racist framework, exploration of racial violence and appropriate anti-violence strategies. Offers theoretical approach for understanding racial violence. Consideration of what is racial violence and racial terror; how feminists should respond to racial violence; connection between historical moments of extraordinary racial violence and our everyday world; how we understand violence at specific sites, e.g., carceral sites, schools, streets, borders, and in different historical contexts; how individuals come to participate in, remain indifferent to, or approve of violence; role of hegemonic masculinity and femininity in these processes; and how violence is sexualized. Exploration of these broad questions through consideration of anti-indigenous/colonial violence, anti-Black and anti-Mexican violence, racial violence underpinning anti-migrant and anti-refugee movements, torture, terror, and state violence. P/NP or letter grading.

**120SL. Feminist Praxis: Community-Based Learning (4)** Seminar, three hours; fieldwork, four hours. Preparation: at least two gender studies core courses. Requisites: course 10 and one course from 102, 103, or 104. Service-learning course combining seminar with practical experience working on gender issues and connecting these experiences to methodological and theoretical themes explored in gender studies core courses. Community partners selected in advance by instructor in consultation with Center for Community Learning. Letter grading.

**121. Topics in Gender and Disabilities (4)** (Same as Disability Studies M121.) Lecture, three and one half hours. Limited to juniors/seniors. Ways in which issues of disability are affected by gender, with particular attention to various roles, positions, and concerns of women with disabilities. Approach is intersectional, exploring how social categories of class, race, ethnicity, religion, age, sexuality, nationality, and citizenship affect and are affected by gender and disability. Topics may include law (civil rights, nondiscrimination), representation (arts, literature), education, public policy, health. May be repeated for credit with topic and instructor change. P/NP or letter grading.

**122. Masculinities (4)** Lecture, three hours. Enforced requisite: course 10. Masculinity as theorized by feminists and shaped by race, class, age, and nation. Topics include feminist theories of masculinity, male body, childhood and adolescent socialization, sport, male violence, homophobia, black masculinity, globalization and masculinity, and men's movements in 1970s and beyond. Special emphasis on social sciences approaches and methodologies. P/NP or letter grading.

**123. Gender, Race, and Class in Latin American Literature and Film, 1850 to 1950 (4)** Seminar, three hours. Requisite: course 10. Readings and discussion in English. Comparative survey of cultural expression in Latin America, with emphasis on works produced or set in late-19th and early-20th centuries. Historical and social circumstances of women in different Latin American cultural contexts, with particular concentration on how gender, sexuality, race, and class are absorbed and reflected in literature and film. Within this genealogy, examination of how cultural production sustains or interrogates categories used to construct social, political, and cultural hierarchies. Topics include questions of authorship and authority such as women's participation in formation of national cultures, engagement with artistic movements, and strategies of self-figuration. P/NP or letter grading.

**124. Sex, Race, and Difference in Transnational Film (6)** (Same as Film and Television M124.) Lecture, three hours; discussion, one hour. Drawing on feminist media studies, training of students in media literacy so they acquire necessary skills to critically interrogate film as medium of communication and to appreciate how film provides lens to examine some of most critical issues of our time. Development of understanding of transnationality to examine how circulations of capital, labor, and commodities transect, render problematic, and sometimes reinforce national borders. Examination of role of film in both exemplifying and representing these conditions of transnationality. How films enable understanding of historical and contemporary relationships between mobility, coercion, and migration; colonialism and settler colonialism; Orientalism, geopolitics, and sexuality; cultural identity and diaspora; transnational conceptions of sexual desire and embodiment; immigration and religious difference; and criminalization of racial difference. P/NP or letter grading.

**125. Perspectives on Women's Health (4)** Lecture/discussion, three hours. Requisite: course 10. Examination in depth of various ways women provide healthcare in both paid and unpaid capacities and of political, economic, and social factors affecting women as recipients of healthcare. P/NP or letter grading.

**126. Feminist and Queer Theory (5)** (Same as English M126 and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M126.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3. Recommended: one course from 102, 103, 104, English 120, or 121. Investigation of key concepts and debates in study of gender, sexuality, and kinship, with focus on their interrelated significance for making of culture.

Readings to be interdisciplinary, with possible emphasis on impact of changing ideas of gender and sexuality on specific historical cultures. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**127. Women in Russian Literature (4)** (Same as Russian M127.) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to alternative tradition of women's writings in Russia and Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers. P/NP or letter grading.

**128. Roots of Patriarchy: Ancient Goddesses and Heroines (4)** (Same as Honors Collegium M118.) Lecture, three hours. Examination of ancient goddesses and heroines—European, Neolithic, Near Eastern, Celtic, Scandinavian, Balto-Slavic, Indo-Iranian, and Greco-Roman—using translations of ancient texts, archaeological evidence, and feminist methodology in order to discover implications of ancient patriarchy on modern society. P/NP or letter grading.

**129. Women and Gender in Caribbean (4)** Seminar, three hours. Requisite: course 10. Exploration of way in which gender discourses have been central to making of Caribbean history and to some most enduring experiments in European empire, capitalist development, and coercive labor. Emphasis on women who lived through slavery and indentured servitude and who continue to live under systems of globalization and neoliberal exploitation. How Caribbean women have historically empowered themselves and their communities, working in various ways to survive, radicalize, and transform their worlds. Ways in which ideas about gender and sexuality have shaped emergence of new nations and national cultures in Caribbean, and consideration of some dominant images of women in public space and popular culture. Exploration of complicated ways in which gender, race, class, sexuality, and national identity intersect in different Caribbean contexts. P/NP or letter grading.

**130. Women of Color in the U.S. (4)** Lecture/discussion, three hours. Requisite: course 10. Exploration of experiences of African American, Asian American, Chicana, and Native American women in order to assess intersections of race, ethnicity, class, and gender. Contemporary and/or historical and/or theoretical perspectives on racism and its relation to feminism as defined by women of color. P/NP or letter grading.

**131. Feminist Politics in Korea and Diaspora (4)** Lecture, three hours. Examination of gender, religion, and social movements in Korea and Korean diaspora through interdisciplinary feminist and critical area studies approach. Use of postcolonial, anti-racist, and intersectional feminist lens to discuss Korea and Korean diaspora as site of inquiry and field of knowledge. Close examination of several contemporary political issues, focusing on salient political ideologies and oppositional social movements mobilized by religious groups, and wide range of ideas, institutions, and practices that are animated by complex politics of gender, sexuality, and religion. Topics include Korean and transnational diasporic activism concerning war, imperialism, and militarism; anticomunism and xenophobia; pro-democracy movements and labor organizing; Catholic and Buddhist solidarity and sanctuary geographies; heteropatriarchy and urban megachurches; faith-based pacifism and conscientious objection to military conscription. P/NP or letter grading.

**CM132A. Chicana Feminism (4)** (Same as Chicana/o and Central American Studies CM110.) Lecture, four hours. Enforced requisite: course 10 or Chicana/o and Central American Studies 10A. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM232A. P/NP or letter grading.

**132B. Contemporary Issues among Chicanas (4)** (Same as Chicana/o and Central American Studies M154.) Lecture, two and one half hours. Requisite: course 10. Overview of conditions facing Chicanas in U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/NP or letter grading.

**133. Chicana Lesbian Literature (4)** (Same as Chicana/o and Central American Studies M133 and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M133.) Lecture, four hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of familia in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

**133A. History of Women in Europe, 800 to 1715 (4)** (Same as History M133A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to 18th century. P/NP or letter grading.

**133B. History of Women in Europe, 1715 to Present (4)** (Same as History M133B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from 18th century to present. P/NP or letter grading.

**133C. History of Prostitution (4)** (Same as History M133C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of prostitution from ancient times to present. Topics include toleration in medieval Europe, impact of syphilis, birth of courtesan, regulation in 19th-century Europe, white slavery scare, and contemporary global sex trade. Readings include novels, primary sources, and testimony by sex workers. P/NP or letter grading.

**134. Gender, Science, and Theory (4)** Lecture, three hours. Requisite: course 10. Examination of differing theoretical perspectives on relation between ideologies of gender and conceptualization and practice of science and medicine. Study of relations among gender, race, class, and sexual orientation and production and legitimation of scientific knowledge. Applications of theoretical critiques to research design, practice, and interpretation. Letter grading.

**135C. Bilingual Writing Workshop (4)** (Same as Chicana/o and Central American Studies CM135 and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M135.) Seminar, four hours. Limited to juniors/seniors. Writing sample required; access to course web page mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression through genre of short fiction. Bilingualism as both politics and aesthetics to be central theme. Discussion and analysis of Chicana/Chicano and Latina/Latino short story collections. Peer critique of weekly writing assignments. Emphasis on narrative techniques such as characterization, plot, conflict, setting, point of view, and dialogue, and magical realism as prevailing Chicanesque/Latinesque style. Some attention to process of manuscript preparation, public reading, and publication. Letter grading.

**136. Music and Gender (5)** (Same as Musicology M136.) Lecture, four hours; discussion, one hour. Analysis of gender ideologies in several musical cultures; representations of gender, body, and sexuality by both male and female musicians; contributions of women to Western art and popular music; methods in feminist and gay/lesbian theory and criticism. Letter grading.

**137E. Work Behavior of Women and Men (4)** (Same as Psychology M137E.) Lecture, two and one half hours. Requisite: course 10 or Psychology 10. Designed for seniors. Examination of work behavior of women and men. Topics include antecedents of career choice, job findings, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles. P/NP or letter grading.

**138. Gender and Popular Culture (5)** Lecture, three hours; screenings, two hours. Limited to juniors/seniors. Conceptual tools and critical skills necessary to rigorously interrogate gender politics of popular culture in the U.S. context. Consideration of theories of popular culture and exploration of distinctive power and ideological force exerted by popular culture in American public life. Examination of specific representations of male and female bodies to understand visual vocabulary of gender in popular culture, as well as relationship between visual stereotypes and regimes of power. Consideration of debates concerning transformative potential of pop culture and exploration of capacity and limits of popular culture as agent of social change. Letter grading.

**139. Women and Art in Contemporary U.S. (4)** Lecture/discussion, three hours. Requisite: course 10. Exploration of some significant cultural issues of contemporary American women's art movement. Representation, resistance, and critical intervention in relation to gender, race, and class. Emphasis on visual and performance arts as these reflect various perspectives of feminism. Letter grading.

**140C. Class and Gender in Care Work (4)** (Same as Asian American Studies M162, Chicana/o and Central American Studies M128B, and Labor Studies M143.) Lecture, three hours; discussion, one hour. Examination of how gender, race, class, and citizenship status shape domestic labor in U.S. Examination of domestic worker experiences through film, fiction, and traditional scholarship. Investigation of why domestic work is in high demand, who employs domestic workers, and why immigrants and women of color make up large percentage of this workforce. Exploration of how domestic workers navigate pay and working conditions, and how they build community and family networks in shadows of their privileged employers. P/NP or letter grading.

**141. Gender, Culture, and Capitalism (4)** Lecture, three hours. Dynamic investigation of culture as terrain of production—and reproduction—of and resistance to gendered, racialized, and classed inequalities through active analysis of advertisements, television serials, Disney fairy tales, and performative forms like fortunetelling. Focus on relationships between gender, culture, and

capitalism through lenses of transnational feminist and queer cultural studies to explore gendered processes of production and consumption of culture under capitalism. P/NP or letter grading.

**142. Race, Gender, and Punishment (4)** Seminar, three hours. Enforced requisite: course 10. Examination of what crisis scholars have called prison industrial complex. U.S. has largest prison population in world. How and why is this? Who is imprisoned? What historical conditions and ideologies gave rise to this massive explosion in prisoner population? Does prison function as regime? How have politicians used imprisonment as response to economic transformations and social disorders? How is current crisis analogous to or distinct from regimes of racialized punishment in prior historical moments? How do prisons change environments? How have people mobilized to reduce U.S. prison population? Why do some activists argue for reform and others for abolition? Examination of key topics, including policing and racial profiling, immigrant detention, privatization, spatial transformations, gender violence, prison spending, and political imprisonment. P/NP or letter grading.

**CM143XP. Healing, Ritual, and Transformation (4)** (Formerly numbered CM143.) (Same as World Arts and Cultures CM140XP.) Lecture, four hours. Designed for juniors/seniors. Examination of how various cultures think of health and wellness, not only individually but collectively. Exploration of structural inequalities within health care and medical sciences. Students are required to contribute weekly to service learning component, working with individuals and organizations in fields of health and wellness including healers, non-profits, and organizations working for social justice. May be concurrently scheduled with CM243XP. Letter grading.

**144. Women's Movement in Latin America (4)** (Same as Chicana/o and Central American Studies M144 and Labor Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

**145. African American Women's History (4)** Seminar, three hours. Enforced requisite: course 10. Historical examination of black women's experiences in U.S. from antebellum era to present. By situating their experiences within major historical transitions in American history, exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover their historical lives and what are challenges to such discoveries? Examination of their individual and collective struggles for freedom from racism, sexism, and heteropatriarchy as well as their participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. P/NP or letter grading.

**146. Feminist Geography (4)** (Same as Geography M144.) Lecture, three hours; discussion, one hour. Critical engagement of gender as concept of geographic inquiry. Gender as spatial process, analysis of feminist geographic theory and methods, landscapes of gender, challenges of representing gender. Spaces of femininity, masculinity, and sexuality. P/NP or letter grading.

**147A. Psychology of Lesbian Experience (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M147A and Psychology M147A.) Lecture, two hours; discussion, one hour. Requisite: course 10 or M114 or Psychology 10. Designed for juniors/seniors. Review of research and theory in psychology and gender studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

**147B. History of Women in Colonial British America and Early U.S., 1600 to 1860 (4)** (Same as History M147C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in early 17th century to rise of women's rights movement in mid-19th century. P/NP or letter grading.

**147C. Transnational Women's Organizing in Americas (4)** (Same as Chicana/o and Central American Studies CM147.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to pro-

cesses of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. P/NP or letter grading.

**147D. History of Women in U.S., 1860 to 1980 (4)** (Same as History M147D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of American women from abolition of slavery and Civil War to rise and consequences of second-wave feminism. P/NP or letter grading.

**149. Media: Gender, Race, Class, and Sexuality (5)** (Same as Communication M149 and Labor Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication and Gender Studies majors and Labor Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

**152. Gender, Disability, and Education (4)** Lecture, three hours. Drawing on critical theory, study engages intersections of disability as it is theorized, constructed, and lived as post/neocolonial condition. Study bridges disability scholarship between global North and South, as well as interdisciplinary fields of feminist disability studies—which assumes disability is always inextricably linked to other social markers, such as gender, race, sexuality, and social class—and indigenous studies—which studies complex and diverse cultures and histories, and their impacts on society. Study locates relationship to disability, gender, and education through decolonial lens and explores topics of phenomenology of lived body and relations to land. P/NP or letter grading.

**153. Gender and Comics (4)** Seminar, three hours. Study of cultural politics of comics—broadly defined to include comic books, cartoons, graphic novels, manga, manhwa, graphic memoirs, documentary comics, etc.—with focus on feminist genealogies and transnational dynamics. Introduction to comics as form of graphic storytelling and sequential art, beginning with primer on basic terminology for reading, discussing, and making comics. For historical context, consideration of gendered youth culture, superheroes, Cold War geopolitics, and comics industry in U.S. and beyond. Examination of comics written for kids and young adults as well as for mature audiences and critical readers, including comics that range from funny and heartwarming to seriously dark, irreverent, and even risqué. These include alternative comics, underground comix, and feminist and queer comics that circulated through alternative newspapers and small presses before rise of graphic novels. Examination also of graphic memoirs, comics journalism, etc. P/NP or letter grading.

**154P. Marriage, Family, and Kinship (4)** (Same as Anthropology M145P.) Lecture, three hours. Requisite: Anthropology 3. Examination of understandings of kinship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and sociocultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

**154Q. Selected Topics in Gender Systems (4)** (Same as Anthropology M145Q.) Lecture, three hours. Recommended preparation: prior anthropology or gender studies courses. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems and cultures from anthropological perspective. Critical review of relevant theoretical issues using ethnography, case study, and presentations. Consult Schedule of Classes for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

**154R. Women and Social Movements (4)** (Same as Anthropology M145R.) Lecture/discussion, three hours. Recommended preparation: prior gender studies or anthropology courses. Comparative studies of social movements (e.g., nationalist, socialist, liberal/reform), beginning with Russia and China and including Cuba, Algeria, Guinea-Bissau, Mozambique, Nicaragua, and Iran. Analysis of women's participation in social transformations and the centrality of gender interests. P/NP or letter grading.

**154T. Women's Voices: Their Critique of Anthropology of Japan (4)** (Same as Anthropology M145T.) Lecture, three hours. Preparation: introductory sociocultural anthropology course. The anthropology of Japan has long viewed

Japan as a homogeneous whole. Restoration of diversity and contradiction in it by listening to voices of Japanese women in various historical contexts. P/NP or letter grading.

**156A. History of Women in the U.S.: Rebellious Women of 20th Century (4)**

Lecture, three hours. Limited to juniors/seniors. Introduction to major and minor figures and movements for social change in the U.S., including themes from politics, sports, civil rebellions, and body. Examination of dramatic challenges to gender roles over course of the 20th century through actions of rebellious women who led way for myriad of changes in women's lives. Offered in summer only. P/NP or letter grading.

**157. Chicana Historiography (4)** (Same as Chicana/o and Central American Studies M158 and History M151D.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

**158. Women, Gender, and Sexuality in Italian Culture (4)** (Same as Italian M158.) Lecture, three hours; discussion, one hour. Analysis of gender roles, images of femininity and masculinity, patriarchy, myths of Madonna and Latin lover, condition of women in Italian society through history, politics, literature, film, and other media. Italian majors required to read texts in Italian. P/NP or letter grading.

**160. Sporting Bodies (4)** Lecture, three hours. Recommended requisite: course 10. From Don Imus' 2007 "nappy-headed hos" comment to controversies about transgender athletes or athletes with prosthetics; from covers of magazines to violence in Dodger's Stadium parking lot; footballers not standing during national anthem, college men's teams rating women's teams in terms of sexual positions, unionization of athletes—discourses of sport draw heavily upon extant ideologies of race, gender, sexuality, and class. Introduction to critical analyses of social categories and how they are represented and reproduced in various sports and media. Critical examination of historical social values and how they are reproduced through sport. P/NP or letter grading.

**161. Sports, Normativity, and Body (4)** (Same as Disability Studies M161.) Lecture, four hours. Since creation of International Olympic Committee in 1894, athletes with disabilities have had, and been denied, formal opportunities to compete with able-bodied athletes. Overview of some major topics of discussion concerning intersections of athletic competition and disability, addressing variety of perspectives and themes on disability and sport, such as passing, sports integration, competition versus charity, and masculinity. Sources include readings, film, television, and biographical writings that address sports, body and disability generally, and Special Olympics specifically. P/NP or letter grading.

**162. Sociology of Gender (5)** (Same as Sociology M162.) Lecture, three hours; discussion, one hour. Enforced requisite: course 10 or Sociology 1. Examination of processes by which gender is socially constructed. Topics include distinction between biological sex and sociological gender, causes and consequences of gender inequality, and recent changes in gender relations in modern industrial societies. P/NP or letter grading.

**163. Gender and Work (4)** (Same as Sociology M163.) Lecture, three hours. Requisite: course 10 or Sociology 1. Exploration of relationship of gender to work, concentrating on the U.S. experience but also including some comparative material. Particular emphasis on analysis of causes and consequences of job segregation by gender and of wage inequality. P/NP or letter grading.

**164. Politics of Reproduction and Everyday Life (4)** (Same as Sociology M164.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Social and human reproduction is global policy issue. Government efforts to influence reproduction are important feature of modern state: political intervention into private life, intimacy, and sexuality. Exploration of politics of reproduction—intersection between politics and life cycle or between public sphere and private lives—and coverage of broad range of issues addressing prevention and promotion of reproduction from historical-comparative approach. Reading, discussion, and development of culminating project. P/NP or letter grading.

**164A. Women, Violence, Globalization: India, Philippines, Singapore, Vietnam (4)** (Same as Asian American Studies M164.) Lecture, four hours. Study of various forms of violence done on women not only in and of themselves but in light of larger systems of oppression, with focus on Filipino, Vietnamese, Singaporean, and South Asian cultures. Letter grading.

**165. Psychology of Gender (4)** (Same as Psychology M165.) Lecture, three hours. Consideration of psychological literature relevant to understanding contemporary sex differences. Topics include sex-role development and role

conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and impact of gender on social interaction. P/NP or letter grading.

**167. Contested Sexualities (4)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M167.) Lecture, three hours; discussion, one hour. Sociological perspectives on formation, control, and resistance of lesbian, gay, bisexual, and transgendered people. Variable topics include identity and community; age, class, gender, and racial diversity; and analysis of contemporary issues affecting contested sexualities. Letter grading.

**168. Feminist Economics in Globalizing World (4)** Lecture, four hours. Preparation: satisfaction of Letters and Science Writing II requirement. Requisite: course 10. Designed for juniors/seniors. Overview of field of feminist economics, with emphasis on development experiences in globalizing world economy. Overview of gender inequalities such as gender division of labor in paid and unpaid work, patterns of employment and unemployment, and wage gaps between men and women in different world economy regions; feminist critiques of economics and of theoretical debates within gender and development field on topics such as structural adjustment, feminization of labor force, and poverty; examination of efforts and proposals by governments, international policy-making institutions, and civil society organizations to make economic policies and structures gender-equitable. P/NP or letter grading.

**169. Common Thread: Garment Workers Past, Present, Future (4)** (Same as Chicana/o and Central American Studies M128C and Labor Studies M108.) Lecture, three hours. Study blends frameworks from economics, labor history, and ethnic studies to offer in-depth exploration of lives and experiences of garment industry workers from early 19th century to present. In contrast to traditional narratives, study locates garment workers—majority of whom are immigrant women—at vanguard of U.S. labor movement, showing how they pioneered new forms of worker education and other social welfare programs, and became leaders in fight for women's, civil, and immigrant rights. Exploration of garment work relationship to American culture, tracing how sweatshop became symbol of worker exploitation, how popular culture and fashion trends impacted lived realities of workers in those shops, and how racial and gendered expectations shaped public perceptions of garment workers. By doing so, study reveals garment work to be central thread that ties together histories of global trade, industrialization, gender and sexuality, immigration, radicalism, unionization, and American imperialism. P/NP or letter grading.

**CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature (5)** (Same as Comparative Literature CM170.) Seminar, three hours. Designed for upper-division literature majors. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM270. P/NP or letter grading.

**170C. History of Women in China, AD 1000 to Present (4)** (Same as History M170C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics include women and family, women in Confucian ideology, women in literati culture, feminist movement, and women and communist revolution. P/NP or letter grading.

**171A. Women, Gender, and Law: Jurisprudence of Sexual Equality (4)** Lecture, four hours. Enforced requisite: course 10. Recommended: course 102 or 103 or 104. Exploration of models of equality described and/or advocated by legal theorists primarily in U.S.—equality of opportunity, equality of outcome, equality of respect, etc.—using specific problems of women (e.g., sexual harassment, pregnancy leave policy, access to safe and effective reproductive control technologies) for purposes of comparison and critique. Specific focus may vary by instructor (e.g., consideration of sexual equality theories to issues of gender equity, legal status of women in countries outside U.S. or from perspectives of international human rights). May be repeated for credit with topic or instructor change. P/NP or letter grading.

**172. Afro-American Woman in U.S. (4)** (Same as African American Studies M172 and Psychology M172.) Lecture, two and one half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

**173B. Women in 20th-Century Japan (4)** (Same as History M173B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Japanese women in Japanese and world history through state documents, autobiographical voices, contemporary television, and other varying historical sources, including topics such as women and new political order (1900 to 1930), women, war, and empire (1930 to 1945), and women in consumer society (1980s to 1990s). P/NP or letter grading.

**174. Sociology of Family (4)** (Same as Sociology M174.) Lecture, three hours; discussion, one hour. Theory and research dealing with modern family, its structure, and functions, including historical changes, variant family patterns, family as institution, and influence of contemporary society on family. P/NP or letter grading.

**175. Women and Cities (4)** (Same as Urban Planning M175.) Lecture, three hours. Limited to juniors/seniors. Examination of relationship between women and cities: (1) how cities have affected women's opportunities for economic and social equality, (2) women's contributions to development of U.S. cities, and (3) contemporary strategies and efforts to create urban environments that reflect women's needs and interests. P/NP or letter grading.

**CM178. Critical Media Literacy and Politics of Gender: Theory and Production (4)** (Same as Education CM178.) Seminar, three hours. Corequisite: course CM178L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM278. Letter grading.

**CM178L. Critical Media Literacy and Politics of Gender: Laboratory (2)** (Same as Education CM178L.) Laboratory, two hours. Corequisite: course CM178. Hands-on production experience as integral component of course CM178. Concurrently scheduled with course CM278L. Letter grading.

**180B. Historical Perspectives on Gender and Science (4)** (Same as History M180B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical cases illustrating how gender enters practices and concepts of science. Topics include gendered conceptions of nature, persona of man of science, role of women in scientific revolution, scientific investigations of women and feminine. P/NP or letter grading.

**185. Special Topics in Gender Studies (4)** Lecture, three hours. Preparation: one prior gender studies course. Designed for juniors/seniors. Specialized or advanced study in one area within gender studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**185A. Special Topics in American Indian and Gender Studies (4)** (Same as American Indian Studies M187A.) Lecture, three hours. Variable topics in American Indian and gender studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**186A. Women and Gender, Prehistory to 1792 (4)** (Same as History M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of history of women, gender, and sexuality from prehistory to 1792. First half deals with period before written history and asks when did gender appear? How and why did patriarchy develop? Topics include evolution of women's bodies, appearance of gender, women's contribution to Neolithic revolution, significance of Goddess artifacts, creation myths, and women and sexuality in different religions. Consideration of effects of European conquest on Mesoamerican women, women's power in monarchies, gender dimensions of Atlantic slavery, and first manifestations of feminist consciousness in second half. Objects or texts created by women examined or read throughout. P/NP or letter grading.

**186B. Global Feminism, 1850 to Present (4)** (Same as History M186B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to movements for women's rights (educational, political, economic, sexual, and reproductive) around world and over one and one half centuries. P/NP or letter grading.

**187. Senior Research Seminar: Gender Studies (4)** Seminar, three hours. Requisites: courses 10, 102, 103, 104. Designed for advanced junior/senior Gender Studies majors or minors. In-depth study of major theme in feminist research. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191D. Topics in Queer Literatures and Cultures (5)** (Same as English M191D and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M191D.) Seminar, three or four hours. Enforced requisite: English Composition 3. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191E. Topics in Gender and Sexuality (5)** (Same as English M191E and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M191E.) Seminar, three or four hours. Enforced requisite: English Composition 3. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191F. Topics in Gender and Disability (5)** (Same as Disability Studies M191F.) Seminar, three hours. In-depth study of major themes in disability studies and gender studies. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. May be repeated for credit with topic change. Letter grading.

**195. Community or Corporate Internships in Gender Studies. (2, 4)** Tutorial, eight hours. Requisites: course 102 or 103 or 104, or two upper-division gender studies courses not in 189 to 199 series. Limited to juniors/seniors. Internship in supervised setting in community agency, organization, or business approved by program. Content of student work must apply gender analysis or be focused on some aspect of gender studies. Students meet on regular basis with instructor, provide periodic reports on their experience on-site, and submit final report. Must be taken for 4 letter-graded units to be applied toward Gender Studies major or minor. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Comparative Approaches to Community and Corporate Internships (4)** (Same as African American Studies M195CE, American Indian Studies M195CE, Asian American Studies M195CE, and Chicana/o and Central American Studies M195CE.) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Comparative study of race, gender, and indigeneity in relation to contemporary workplace dynamics. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in Gender Studies (4)** Tutorial, four hours. Preparation: at least two upper-division gender studies courses. Requisite: course 102 or 103 or 104. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Content may include themes in feminist discourse, application of feminist theoretical perspectives to disciplinary field, or emerging areas of inquiry. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. Letter grading.

**198A. Honors Research in Gender Studies (4)** Tutorial, four hours. Requisite: course 187. Limited to junior/senior gender studies honors program students. First term of three-term sequence to research and write honors thesis under direct supervision of faculty sponsor and in consultation with faculty co-sponsor. Individual contract required. Letter grading.

**198B. Honors Research in Gender Studies (4)** Tutorial, four hours. Enforced requisite: course 198A. Limited to junior/senior gender studies honors program students. Second term of three-term sequence to research and write

honors thesis under direct supervision of faculty sponsor and in consultation with faculty cosponsor. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

**198C. Honors Research in Gender Studies (4)** Tutorial, four hours. Enforced requisites: courses 198A, 198B. Limited to junior/senior gender studies honors program students. Third term of three-term sequence to research and write honors thesis under direct supervision of faculty sponsor and in consultation with faculty cosponsor. Individual contract required. Letter grading.

**199. Directed Research in Gender Studies. (2, 4)** Tutorial, to be arranged. Preparation: at least two upper-division gender studies courses, minimum 3.0 grade-point average. Requisite: course 102 or 103 or 104. Limited to junior/senior Gender Studies majors and minors. Supervised individual research or investigation under guidance of faculty mentor on specific topic within gender studies. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

## Graduate

**201. Introduction to Interdisciplinary Methods in Gender Studies (4)** Seminar, three hours. Presentation by faculty members of approaches to interdisciplinary studies and discussion of their own research. Demystification of methods, particularly of interdisciplinary sort, to introduce students to wide range of faculty research and to incorporate questions of ethics. Focus on interdisciplinary gender research that intervenes in knowledge production. Particular issues include approaches to interdisciplinary methods of research, introduction to feminist intersectional and queer theories, effective use of reflexivity and positionality in research and writing, and incorporating ethics into research design, conduct, and teaching. May be repeated once for credit with instructor change. Letter grading.

**202. Key Theories and Concepts in Gender Studies (4)** Lecture/discussion, three hours. Relationship of debates in field to key intellectual and social movements (such as Marxism, poststructuralism, critical race studies, queer studies, indigenous studies, and postcolonial and transnational studies) that have elicited feminist critiques and contributed to development in feminist thought. Issues include analysis of central theoretical works in field and survey of key methodologies, examination of key concepts and debates in gender studies, and identification of debates that have generated key analytics in feminist analysis and gender studies scholarship. May be repeated once for credit with instructor change. Letter grading.

**203. Epistemologies of Gender (4)** Lecture/discussion, three hours. Focus on debates concerning methods of inquiry in gender and sexuality studies and exploration of intersections of feminist studies, masculinity studies, and queer studies. Debates and interventions concern interdisciplinary, intersectional feminist methods and changing boundaries of field over time. Exploration of critical tools to utilize and interrogate existing methodologies. Issues include examination of how feminisms have shaped and been shaped by processes of knowledge-production within and across disciplinary boundaries, cultures, and paradigms, and importance of intersectional, standpoint, and queer theory as critical research tools and as responses to issues of power, domination, oppression, and other loci of identities and difference. May be repeated once for credit with instructor change. Letter grading.

**204. Research Design and Professional Development (4)** Seminar, three hours. Required of third-year gender studies graduate students. To be taken after all other coursework is complete; primarily geared toward proposal writing for dissertations and outside grants. Process of constructing dissertation proposals by providing structured process with incremental steps toward writing of dissertation proposal draft. Professional development for students as they prepare to enter academia or other professions. Help in preparation for fall grant-writing season, exploration of job/interview process, development of materials to assist in teaching, and analysis of various job markets. May be repeated once for credit with instructor change. Letter grading.

**205. Subfields in Gender Studies (4)** Seminar, three hours. Departmental topics course that offers in-depth aspects of field. Limits of investigation set by individual instructor. S/U or letter grading.

**210. Topics in Women and Public Policy (4)** Lecture, four hours. Designed for graduate gender studies students. Introduction to background, decision-making processes, and current debates over public policy directly affecting women in one or more major spheres of public life (e.g., work, family, political system, healthcare, legal regulation). Topics may focus on public health, political science, medicine, workplace studies, and social welfare. May be repeated for credit with topic or instructor change. Letter grading.

**215. Topics in Study of Sexuality and Gender (4)** Seminar, three to four hours. Designed for graduate students. Multidisciplinary studies on aspects of sexual orientation, gender identity, queer and transgender theory, interdisci-

plinary research on minority sexualities, and social construction/deconstruction of gender. May be repeated for credit with topic or instructor change. Letter grading.

**220. Cultural Studies in Gender, Race, and Sexuality (4)** Seminar, three hours. Designed for graduate students. In-depth study of representations of gender and sexuality in literature and performance culture, with special attention to race. Topics include flow of artistic cultural production across national borders, theorizing femiqueer as diasporic or multicultural formation. Letter grading.

**CM232A. Chicana Feminism (4)** (Same as Chicana/o and Central American Studies CM214.) Lecture, four hours. Enforced requisite: course 10 or Chicana/o and Central American Studies 10A. Examination of theories and practices of women who identify as Chicana feminist. Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. Concurrently scheduled with course CM132A. S/U or letter grading.

**238. Sociology of Gender and Sexuality (4)** (Same as Sociology M238.) Seminar, three hours. Designed for graduate students. Analysis of current American feminist theory relevant to sociologists. Exploration of critiques of second wave feminism by working class feminists and/or feminists of color, feminist scholars from other countries, and recent so-called antifeminist feminists. Discussion of directions for future feminist sociology. Letter grading.

**CM243XP. Healing, Ritual, and Transformation (4)** (Formerly numbered CM243.) (Same as World Arts and Cultures CM240XP.) Lecture, four hours. Designed for graduate students. Examination of how various cultures think of health and wellness, not only individually but collectively. Exploration of structural inequalities within health care and medical sciences. Students are required to contribute weekly to service learning component, working with individuals and organizations in fields of health and wellness including healers, non-profits, and organizations working for social justice. May be concurrently scheduled with CM143XP. Letter grading.

**252. Selected Topics in Sociology of Gender (4)** (Same as Sociology M252.) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit. Letter grading.

**253A. Seminar: Current Problems in Comparative Education (4)** (Same as Education M253A.) Seminar, four hours. Examination of some of most influential critical theorists, including Marx, Nietzsche, Freud, Marcuse, Foucault, Fanon, and de Beauvoir and their contributions to critique of contemporary education, society, and politics. S/U or letter grading.

**255. Cross-Cultural Perspectives on Gender (4)** (Same as Sociology M255.) Seminar, three hours. How does gender manifest itself in lives of different groups of women in U.S. and abroad? Are universal analytical categories or united feminist movements possible or is gender too different cross-culturally? S/U or letter grading.

**259A. History of Women (4)** (Same as History M259A.) Seminar, three hours. Course M259A is requisite to M259B. History of women's social and political issues seen in U.S. and comparative context. In Progress grading (credit to be given only on completion of course M259B).

**259B. History of Women (4)** (Same as History M259B.) Seminar, three hours. Requisite: course M259A. History of women's social and political issues seen in U.S. and comparative context. Letter grading.

**261. Gender and Music in Cross-Cultural Perspective (4)** (Same as Ethnomusicology M261.) Seminar, three hours. Designed to foster in-depth understanding of gender in study of music as culture. Topics range from ethnography of gender and sexuality, (de)codification of messages of resistance, and gender representation to gendered politics via musical production. S/U or letter grading.

**263. Gender Systems (4)** (Same as Anthropology M243.) Seminar, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

**266. Feminist Theory and Social Sciences Research (4)** (Same as Education M266.) Lecture, four hours. Examination of how diverse feminist social theories of last quarter century have both challenged and strengthened conventional social sciences theories and their methodologies. Introduction especially to feminist standpoint theory, distinctive critical theory methodology now widely used in social sciences. Letter grading.

**CM270. Alternate Traditions: In Search of Female Voices in Contemporary Literature (5)** (Same as Comparative Literature CM270.) Seminar, four hours. Designed for graduate students. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and

Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM170. S/U or letter grading.

**CM278. Critical Media Literacy and Politics of Gender: Theory and Production (4)** (Same as Education CM278.) Seminar, three hours. Corequisite: course CM278L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM178. Letter grading.

**CM278L. Critical Media Literacy and Politics of Gender: Laboratory (2)** (Same as Education CM278L.) Laboratory, two hours. Corequisite: course CM278. Hands-on production experience as integral component of course CM278. Concurrently scheduled with course CM178L. Letter grading.

**285. Special Topics in Gender Studies (4)** Lecture/discussion, four hours. Designed for graduate students. Selected topics or special problems. In-depth study of aspects of feminist theory or research methods or gender analysis within disciplinary studies in social sciences, humanities, health sciences, arts, or professional programs. May be repeated for credit with topic or instructor change. Letter grading.

**296. Doctoral Roundtable (2)** Research group meeting, two hours. Preparation: satisfactory completion of PhD program first year. Requisites: at least two courses from 201, 202, 203, 210. Limited to program PhD students. Interactive seminar with focus on disciplinary and interdisciplinary issues, feminist scholarship, research presentation, and professional development. May be repeated for credit. S/U grading.

**495. Feminist Pedagogy (4)** Seminar, two hours. Preparation: appointment as teaching assistant in department. Introduction to feminist methods of teaching, with emphasis on reciprocity and dialogue and de-emphasis on hierarchy. Required of students while serving as teaching assistants (first time only) in undergraduate gender studies courses. May be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. Requisites: courses 201, 202, 203. Directed individual research and study in area related to women's studies/gender studies, arranged individually by student with instructor. May be repeated for credit. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, eight hours. Limited to graduate gender studies students. Reading and preparation for written MA comprehensive examination or PhD qualifying field examinations. May be repeated for a maximum of 12 units. S/U grading.

**598. Research for MA Thesis (2 to 12)** Tutorial, to be arranged. Requisites: courses 201, 202, 203. Research for and writing of MA thesis under direction of thesis committee chair. May be repeated for credit. S/U grading.

**599. Dissertation Research. (2 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Research for and writing of PhD dissertation under direction of dissertation committee chair. May be repeated for credit. S/U grading.

# Geography

## Geography Courses

### Lower Division

**1. Earth's Physical Environment (5)** Lecture, three hours; laboratory, two hours. Study of Earth's physical environment, with particular reference to nature and distribution of landforms and climate and their significance to people. P/NP or letter grading.

**2. Biodiversity in Changing World (5)** Lecture, three hours; discussion, two hours. Biogeographic exploration of plant and animal diversity and conservation issues on continents and islands around world. Study of physical, biotic, and human factors responsible for evolution, persistence, and extinction of species and ecological communities. Analysis of effects of human activity. P/NP or letter grading.

**3. Cultural Geography (5)** Lecture, three hours; discussion, two hours. Introduction to cultural geography of modern world, with examination of key concepts of space, place, and landscape as these have shaped and been shaped by connections between societies and their natural environments. Examples from variety of landscapes and places since 1800 and especially from Los Angeles region. P/NP or letter grading.

**4. Globalization: Regional Development and World Economy (5)** Lecture, three hours; discussion, two hours. Economic geography explores spatial distribution of all forms of human productive activity at number of geographical scales—local, regional, national, and global. Key theme is impact of increasingly powerful global economic forces on organization of production. P/NP or letter grading.

**5. People and Earth's Ecosystems (5)** Lecture, three hours; laboratory, two hours. Exploration of ways in which human activity impacts natural environment and how modification of environment can eventually have significant consequences for human activity. Examination, using case studies, of real environmental problems that confront us today. P/NP or letter grading.

**6. World Regions: Concepts and Contemporary Issues (5)** Lecture, three hours; discussion, two hours. Interdisciplinary and historical approach to modern peoples, their differences in wealth or poverty, and their local origins of food production. Brief introduction to physical geography and biogeography of each region. Discussion of each region's peoples, languages, foods, prehistories, and histories. Letter grading.

**7. Introduction to Geographic Information Systems (5)** Lecture, three hours; laboratory, two hours. Designed for freshmen/sophomores. Introduction to fundamental principles and concepts necessary to carry out sound geographic analysis with geographic information systems (GIS). Reinforcement of key issues in GIS, such as geographic coordinate systems, map projections, spatial analysis, and visualization of spatial data. Laboratory exercises use database query, manipulation, and spatial analysis to address real-world problems. P/NP or letter grading.

**8. Geographies of Sustainability and Unsustainability (5)** Lecture, three hours; discussion, two hours. Exploration from a geographical perspective of how sustainability can be understood. Consideration of why the organization of different kinds of landscapes encourages, fosters, enables, and stymies building of sustainable relationships among people, land, waterways, flora, and fauna. While readings and discussions reference scientific studies, focus is on exploring social, historical, cultural, and political-economic dimensions of environmental problems and solutions. Examination of cultural ideas about human environment interaction and questions of power, politics, history, and inequality asking how they contribute to the problems that scientists measure and discuss. Selective focus on those issues of sustainability and unsustainability that are most central to everyday lives in Los Angeles, including questions of food, water, waste, and urban sustainability more generally. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**88A. Lower-Division Seminar: Geography (4)** Discussion, three hours; reading period, one hour. Seminars designed to explore various themes and issues pertinent to environment and people. Seminar topics advertised in department during previous term. P/NP or letter grading.



**88GE. Seminar Sequence: Special Topics in Geography (5)** Seminar, three hours. Enforced requisite: course 5. Designed for sophomores/juniors. Exploration of aspects of lecture topic through readings, images, and discussions. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Principles of Geomorphology (4)** (Formerly numbered 100.) Lecture, three hours; reading period, one hour. Requisite: course 1. Study of processes that shape world's landforms, with emphasis on weathering, mass movement and fluvial erosion, transport, deposition; energy and material transfers; space and time considerations. P/NP or letter grading.

**102. Soils and Environment (4)** (Formerly numbered M127.) (Same as Ecology and Evolutionary Biology M127 and Environment M102.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

**102L. Soils and Environment: Field (1)** (Formerly numbered M127L.) (Same as Ecology and Evolutionary Biology M127L and Environment M102L.) Laboratory, one hour; field excursions. Corequisite: course M102. Investigations and demonstrations supporting material in course M102, including excavating, describing, and naming soils in field, soil forming processes, geomorphology, and soils. P/NP or letter grading.

**103. Soil and Water Conservation (4)** (Formerly numbered M107.) (Same as Environment M103.) Lecture, three hours; discussion, one hour. Enforced requisite: one course from course 1, 2, Environment 10, Life Sciences 7B. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, development, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forestry, mining, and other rural uses of land. P/NP or letter grading.

**106. World Vegetation (4)** (Formerly numbered 108.) Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Characteristics, distribution, environmental and cultural relationships of world's principal vegetation patterns. P/NP or letter grading.

**107. Forest Ecosystems (4)** (Formerly numbered 111.) Lecture, three hours; field trips. Requisite: course 2 or Life Sciences 7B. Designed for juniors/seniors. Evaluation of ecological principles as they apply to forests. Emphasis on constraints of physical environment, biotic interactions, succession, disturbances, and long-term environmental change. P/NP or letter grading.

**108. Analytical Animal Geography (4)** (Formerly numbered 112.) Lecture, three hours. Requisites: courses 1, 2 or Life Sciences 7B, Statistics 12. Designed for juniors/seniors. Analysis of processes of expanding and contracting distribution areas. Focus on island biogeography and its implications for biodiversity trends in natural and anthropogenic environments. P/NP or letter grading.

**109. Biogeography of Plant and Animal Invasions (4)** (Formerly numbered 116.) Lecture, three hours; reading period, one hour. Requisite: course 1 or 2 or 5. Examination of theories and examples of invasion of new environments by plants and animals introduced through natural processes or by human activity. P/NP or letter grading.

**110. Ecosystem Ecology (4)** (Formerly numbered M117.) (Same as Ecology and Evolutionary Biology M131.) Lecture, three hours; field trips. Requisite: course 1 or Life Sciences 7B. Designed for juniors/seniors. Development of principles of ecosystem ecology, with focus on understanding links between

ecosystem structure and function. Emphasis on energy and water balances, nutrient cycling, plant-soil-microbe interactions, landscape heterogeneity, and human disturbance to ecosystems. P/NP or letter grading.

**116. Climatology (4)** (Formerly numbered 104.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of many relations between climate and world of man. Application of basic energy budget concepts to microclimates of relevance to ecosystems of agriculture, animals, man, and urban places. P/NP or letter grading.

**117. Tropical Climatology (4)** (Formerly numbered 102.) Lecture, three hours. In-depth exploration of development of tropical climate, with special reference to hurricanes, ENSO, and monsoons. Examination of human interaction with tropical climate processes and human-induced climate change in tropics. Use of climatological information to foster sound environmental management of climate-related resources in tropics. P/NP or letter grading.

**118. Applied Climatology: Principles of Climate Impact on Natural Environment (4)** (Formerly numbered M106.) (Same as Atmospheric and Oceanic Sciences M106.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of knowledge and tools to solve complex problems in contemporary applied climatology, including current practices, influence of climate on environment, and human influence on changing climates. P/NP or letter grading.

**119. Global Climatology and Climate Change (4)** Lecture, three hours. Requisite: course 1. Survey of Earth's climate system and factors that cause globe's climate to change. Study of most important properties of climate, and how they vary and connect geographically and over time. Explanation of physical laws governing climate variations and interconnections to build basic-level understanding of natural climate phenomena and impacts of human industrial and agricultural activities. Explanation of source of Earth's heat energy, determinants of temperature near surface and throughout atmosphere, and how observed seasonal and spatial variations are created. Introduction to various motion systems in atmosphere and ocean and their governing physical laws. Exploration of nature and causes of past changes in global climate evident in paleo-records. Survey of current understanding of ongoing human-caused climate change event, and how climate models are used to develop projections of future climate change. P/NP or letter grading.

**120. Hydrology (4)** (Formerly numbered 105.) Lecture, three hours. Requisites: course 116, Statistics 12. Role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on landscape. Field projects required. P/NP or letter grading.

**125. Environmentalism: Past, Present, and Future (4)** (Formerly numbered M115.) (Same as Environment M125 and Urban Planning M165.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

**126. Environmental Change (4)** (Formerly numbered M131.) (Same as Environment M126.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of natural forces producing environmental changes over past two million years. How present landscape reflects past conditions. Effects of environmental change on people. Increasing importance of human activity in environmental modification. Focus on impact of natural and anthropogenic changes on forests. P/NP or letter grading.

**127. Global Environment and Development: Problems and Issues (4)** (Formerly numbered M128.) (Same as Urban Planning CM166.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. P/NP or letter grading.

**130. Food and Environment (4)** (Formerly numbered 132.) Lecture, three hours. Designed for juniors/seniors. Thematic orientation to food systems and their role in environmental and cultural transformations. P/NP or letter grading.

**131. Human Impact on Biophysical Environment (4)** (Formerly numbered M109.) (Same as Environment M131.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of history, mechanisms, and consequences of interactions between humans and environment. Explo-

ration in depth of three thematic topics (deforestation, desertification, and greenhouse gas increase and ozone depletion) and four major subjects (soil, biodiversity, water, and landforms). P/NP or letter grading.

**133. Humid Tropics (4)** (Formerly numbered 113.) Lecture, three hours. Requisite: course 2 or 5 or Life Sciences 7B. Designed for juniors/seniors. Examination of humid tropics, with emphasis on rainforests, their ecological principles, and forms of land use. Letter grading.

**135. Africa and African Diaspora in Americas (4)** (Formerly numbered 114.) Lecture, three hours. Designed for juniors/seniors. Historical-geographical examination of Africa's role in Americas, with emphasis on environment, agriculture, food systems, and medicinal crops. P/NP or letter grading.

**136. Health and Global Environment (4)** (Formerly numbered 125.) Lecture, three hours; reading period, one hour. Impact of environment and lifestyle on individual health examined from geographical perspective, with examples from both developed and developing countries. P/NP or letter grading.

**138. Wildlife Conservation in Eastern and Southern Africa (4)** (Formerly numbered 122.) Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Analysis of tropical ecosystems of eastern Africa, including wildlife communities, vegetation, climate, and human impact. Discussion of national park systems and their natural and anthropogenic ecological dynamics. P/NP or letter grading.

**139B. Problems in Geography: Biogeography (4)** (Formerly numbered 159E.) Seminar, three hours; reading period, one hour. Preparation: completion of three courses in one concentration. Limited to seniors. Seminar course in which students carry out intensive research projects developed from courses within one concentration. P/NP or letter grading.

**139C. Problems in Geography: Culture and Environment in Modern World (4)** (Formerly numbered 159C.) Seminar, three hours; reading period, one hour. Preparation: completion of three courses in one concentration. Limited to seniors. Seminar course in which students carry out intensive research projects developed from courses within one concentration. P/NP or letter grading.

**140. Social Geography (4)** (Formerly numbered 147.) Lecture, three hours; discussion, one hour. Study of spatiality of social differences such as race, class, gender, age, sexuality, location. Critical explorations of identity, social categories, and spatial structures. Importance of space and place in social life. P/NP or letter grading.

**141. Cultural Geography of Modern World (4)** (Formerly numbered 133.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors and graduate students. Historical and structural approach to cultural geography of modern world system, with particular emphasis on structure and functioning of its core, semi-periphery, and periphery. P/NP or letter grading.

**142. (When) Do Leaders Make Differences? (5)** (Formerly numbered M153.) (Same as Anthropology M148 and Honors Collegium M152.) Lecture, two hours; discussion, two hours. Examination of leaders who did or did not succeed in effecting change, as background to understanding conditions under which leaders can make differences. Comparison of political leaders, business chief executive officers, sports coaches, and religious leaders. Letter grading.

**144. Feminist Geography (4)** (Formerly numbered M146.) (Same as Gender Studies M146.) Lecture, three hours; discussion, one hour. Critical engagement of gender as concept of geographic inquiry. Gender as spatial process, analysis of feminist geographic theory and methods, landscapes of gender, challenges of representing gender. Spaces of femininity, masculinity, and sexuality. P/NP or letter grading.

**145. Slavery and Human Trafficking. (4 to 5)** Lecture, three hours; discussion, two hours (when scheduled); reading period, one hour. Offered either as 4-unit course without discussion sessions or 5-unit course with discussion sessions. Requisite: one course from 3, 4, Anthropology 3, Gender Studies 10, or Sociology 1. Limited to juniors/seniors. Exploration of how, why, and to what ends human trafficking has been conceptualized as global problem that warrants international response. Examination of recent activist, governmental, scholarly, and media responses, and reflection on what is and is not accomplished by them. Questions of human trafficking are implicitly geographical, requiring consideration of ways freedom is spatially defined and how movement across borders is encouraged and regulated. How questions of labor, migration, sexuality, rights, ethics, embodiment, representation, and governance pertain to human trafficking. What people mean when they speak of human trafficking as slavery. Meanings of slavery and freedom in world today using examples from U.S. and Europe, with focus on Philippines as case study for exploring both contemporary examples and historical forms of enslavement. P/NP or letter grading.

**146. Environmental Justice and Climate Change (4)** Lecture, three hours. Designed for juniors/seniors. Examination of environmental quality and social justice. Premise that all people have right to live in clean environment and ac-

cess resources to sustain health and livelihood. Investigation of under what conditions some people are denied this basic right and how some have fought back. Consideration of how certain groups of people experience effects of pollution or environmental hazards more than others, or lack basic resources; what social relations of production and power that contribute to these outcomes are; and how people have organized to demand environmental justice. P/NP or letter grading.

**147. Environmental Politics and Policy (4)** Lecture, three hours. Requisite: course 5. Covers some of major recent debates within fields of environmental studies and environmental geography. Definition of key terms and exploration of history and evolution of environmental policymaking, with focus mainly on U.S. Focus on current hot topics in field including Anthropocene, clean energy transitions, and Green New Deal. Students delve deeper into topic of interest by working with group to put together final presentation. P/NP or letter grading.

**148. Political Geography (4)** (Formerly numbered 140.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Spatiality of political activity, spatial constitution of political power, control over space as central component to political struggles. Studies at local, national, state, and global scales. P/NP or letter grading.

**149. Border Studies: Globalization, Nation, Identity (4)** (Formerly numbered 134.) Lecture, three hours; discussion, one hour (when scheduled). Analysis of history, production, and functions of contemporary borders. Designed to broaden understanding of and challenge dominant narratives about many physical, political, and conceptual borders that shape our daily lives, from national boundaries to security fences to discoveries about race and gender. P/NP or letter grading.

**150. Economic Geography (4)** (Formerly numbered 148.) Lecture, three hours; reading period, one hour. Requisite: course 4. Designed for juniors/seniors. Geographical aspects of economic production and growth. General theory of space-economy. Land-use processes. Location of industry. Regional development. P/NP or letter grading.

**151. Uneven Development Geographies: Prosperity and Impoverishment in Third World (4)** (Formerly numbered 141.) Lecture, three hours; discussion, two hours (when scheduled). Geographical perspective on part of globe commonly called Third World (global South). How development has shaped livelihood possibilities and practices, by global processes stretching back centuries, and transformative possibilities of Third World agency. World societies seek to transform Third World into their own image through theories and practices of colonialism, development, and globalization. Study of those theories and Third World alternatives to examine how they have shaped livelihood possibilities. Social differences between stagnant livelihood possibilities for Third World majority and minorities that prosper massively, as well as geographical differences (culturally, environmentally, and socially) across Third World. Examination of possibilities of Third World agency, ranging from interstate collaboration to village activism, asking whether such agency and alternative imaginaries can enable Third World residents to break with First World developmentalism. P/NP or letter grading.

**153. Transportation Geography (4)** (Formerly numbered M149.) (Same as Urban Planning M150.) Lecture, three hours. Requisite: course 3 or 4. Designed for juniors/seniors. Study of geographical aspects of transportation, with focus on characteristics and functions of various modes and on complexities of intra-urban transport. P/NP or letter grading.

**158. Population Geography (4)** (Formerly numbered 142.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of social and behavioral perspectives influencing people in their patterns of demographic change, migration, and mobility, with special emphasis on spatial relationships and selected case studies. P/NP or letter grading.

**159. Population in Interacting World (4)** (Formerly numbered 143.) Lecture, three hours. Provides multidisciplinary understanding of and appreciation for human population phenomena and problems in different parts of world and at different geographical scales—from local to global. Particular emphasis on understanding and critically reflecting on (1) contemporary population problems at global, national, and local scale, including both dramatic decline and persistence of high levels of fertility in parts of developing world, record low fertility and population aging in highly industrialized countries, increasing levels of international migration, refugee crises, massive rural to urban migrations, and creation of mega-cities in less developed world, (2) policies adopted to address these problems, such as family planning policies to reduce fertility, immigration policies, and so on, and (3) gender dimension of contemporary population problems and policies. P/NP or letter grading.

**160. Urban Geography (4)** (Formerly numbered 150.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of development, functions, spatial patterns, and geographic problems of cities. P/NP or letter grading.

**161. Cities and Social Difference (4)** (Formerly numbered 151.) Lecture, three hours; discussion, one hour. City landscapes embody best and worst of U.S. society: diversity and poverty, opportunity and violence. Study of urban spaces, social differences, inequality, and conflicts over uses and meanings of city space. Social urban geography. P/NP or letter grading.

**162. Ethnicity in American Cities (4)** (Formerly numbered 144.) Lecture, three hours; reading period, two hours. Limited to juniors/seniors. Designed to encourage and facilitate critical thinking about geographical aspects of ethnicity in contemporary America. Use of comparative perspective to explain changing distribution, social, economic, and political behavior, and adjustment problems ethnic groups face in contemporary American cities. P/NP or letter grading.

**169A. Problems in Geography: Urban and Regional Development Studies (4)** (Formerly numbered 159A.) Seminar, three hours; reading period, one hour. Preparation: completion of three courses in one concentration. Limited to seniors. Seminar course in which students carry out intensive research projects developed from courses within one concentration. P/NP or letter grading.

**171A. North America (4)** (Formerly numbered 180.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Delimitation and analysis of principal geographic regions of U.S. and Canada. P/NP or letter grading.

**171B. California (4)** (Formerly numbered 184.) Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Systematic and regional treatment of geography of California, including physical, cultural, and economic aspects and detailed studies of various regions. P/NP or letter grading.

**171C. Metropolitan Los Angeles (4)** (Formerly numbered 156.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of origins, growth processes, internal structure and pattern, interactions, environmental and spatial problems of Los Angeles metropolitan area. P/NP or letter grading.

**172A. Spanish South America (4)** (Formerly numbered 182A.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Spanish South America and contemporary economic and cultural geography of individual Spanish-speaking countries. P/NP or letter grading.

**172B. Central America (4)** (Formerly numbered 181.) Seminar, two and one half hours. Located at center of American continent, Central America is central player in production of many important crops for world, and epicenter of massive migration waves. Exploration of Central America to understand way region has been defined by both European colonization and more modern interventions led by neocolonial relations with U.S. Consideration of role of racialization in producing specific racial/spatial dynamics in region. Fundamental exploration of how transnational migration has created expansive Central American diaspora that produces effects in isthmus and abroad. Letter grading.

**172C. Brazil (4)** (Formerly numbered 182B.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Portuguese South America and contemporary economic and cultural geography of Brazil. P/NP or letter grading.

**173A. Cities of Europe (4)** (Formerly numbered 152.) Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Urbanization of Europe, growth of city systems and internal spatial structure, functions, and geographic problems of contemporary European cities. Particular attention to historical development and landscapes of capital cities such as Rome, Paris, and Berlin. P/NP or letter grading.

**174A. The Mediterranean World (4)** (Formerly numbered 183.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Mediterranean region, with emphasis on 1500s to present. Introduction to great disputes in history and ecology centered on this region and character of two shores of Mediterranean basin. P/NP or letter grading.

**175A. Japan in World: Culture, Place, and Global Connections (4)** (Formerly numbered 139.) Lecture, three hours; reading period, one hour. Focus on questions of culture and place in Japan. Exploration of ways that these questions—and Japan itself—have been shaped by historical and contemporary interactions involving people in both Japan and other parts of world. P/NP or letter grading.

**175B. Contemporary China (4)** (Formerly numbered 186.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Systematic geographic analysis of elements of landscape, resources, population, and socioeconomic characteristics of People's Republic of China. Dynamics that

have led to China's major role in East Asian and international scene, with special attention to China-Japan and Sino-American relations and their geographic bases. P/NP or letter grading.

**176A. Southeast Asia (4)** (Formerly numbered 185.) Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Regional synthesis with varying emphasis on people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation. P/NP or letter grading.

**178. Conservation Geography Field and Professional Practices (3)** Fieldwork, eight hours; research group meeting, three hours; one-, three-, and four-day field trips. Limited to senior Geography and Geography/Environmental Studies majors. Enrollment by application. Field focus on California vegetation and its response to current and future climate change. Students learn to collect field data, and to conduct field vegetation research. Students learn to work as professional research consultants in teams, develop consulting research proposals, consultant assessment reports, and present those reports orally and in written format to clients. Field trips to Mojave Desert, Great Basin Desert, pinyon pine woodland, pine-fire forest, alpine treeline, White Mountains, Sierra Nevada, and coastal pine and redwood forests. P/NP or letter grading.

**180. Cartography (4)** (Formerly numbered 167.) Lecture, two hours; laboratory, four hours. Enforced prerequisite: course 7. Designed for juniors/seniors. Survey of field of cartography. Theory and construction of map projections, compilation procedures, principles of generalization, symbolization, terrain representation, lettering, drafting and scribing, and map reproduction methods. P/NP or letter grading.

**181A. Intermediate Geographic Information Systems (4)** (Formerly numbered 168.) Lecture, two hours; laboratory, two hours. Enforced prerequisite: course 7. Extension of basic concepts presented in course 7. How geographic and spatial analyses inform, integrate, and extend scientific inquiry in physical, life, and social sciences. Discussion of range of decisions and critical judgments necessary to carry out sound spatial analyses. Development of technical proficiency within geographic information systems (GIS) environment. P/NP or letter grading.

**181B. Advanced Geographic Information Systems (4)** (Formerly numbered 170.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 181A. Introduction to full geographic information systems (GIS) functionality, using ARC/INFO on UNIX workstations. Spatial manipulation, query, and computation of datasets carried out in project-oriented approach. P/NP or letter grading.

**181C. Geographic Information Systems Programming and Development (4)** (Formerly numbered 173.) Lecture, two hours; laboratory, two hours. Enforced prerequisite: course 181A. Introduction to fundamental concepts and architecture of programming objects in widely used geographic information systems (GIS), and programming in GIS environment. Topics include GIS customization and development using variety of programming languages. Lectures followed by laboratory exercises. P/NP or letter grading.

**182A. Introduction to Remote Sensing (4)** (Formerly numbered 169.) Lecture, two hours; laboratory, one hour. Enforced prerequisite: course 7. Introduction to fast-growing field of environmental monitoring from space. Application of Landsat, radar, Global Positioning System (GPS), and Earth Observing System satellites to land-use change, oceanography, meteorology, and environmental monitoring. Introduction to digital image-processing and imaging geographic information systems (GIS) software. P/NP or letter grading.

**182B. Remote Sensing: Digital Image Processing and Analysis (4)** (Formerly numbered 172.) Lecture, three hours; laboratory, one hour. Enforced prerequisite: course 182A. Digital processing methods for manipulating and analyzing image data. Topics include statistical description, geometric and radiometric correction, classification, image enhancement and filtering, and change detection schemes. Reinforcement of procedures presented in lecture with laboratory exercises and student project. P/NP or letter grading.

**182C. Advanced Remote Sensing (5)** (Formerly numbered 174.) Lecture, three hours; laboratory, two hours. Prerequisite: course 182A. Remote sensing in visible and infrared wavelength regions to understand basic concepts of radiation propagation and interaction with matter, how digital remote sensing images are acquired, and constraints on available data and data analysis. P/NP or letter grading.

**184. Environmental Modeling (4)** (Formerly numbered 166.) Lecture, one hour; laboratory, two hours. Presentation of basic concepts related to computer modeling of biogeochemical cycles, geomorphic processes, and other phenomena relevant to changing Earth and its inhabitants. Laboratory exercises include building basic computer models and working with existing models. P/NP or letter grading.

**185. Field Methods in Physical Geography (5)** (Formerly numbered 177.) Lecture, three hours; laboratory, three hours. Enforced prerequisite: course 182A. Examination of field procedures and concepts used in observation, measurement, analysis, and interpretation of physical phenomena pertinent to natural and built environment. Topics vary from year to year and may include soils, geomorphology, and field methods in geographic information science. May be repeated for credit with topic change. P/NP or letter grading.

**186. Introduction to Spatial Statistics (4)** (Formerly numbered M171.) (Same as Statistics M171.) Lecture, three hours; laboratory, one hour. Prerequisite: one course from Statistics 10, 12, 13. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

**187. Research and Writing in Human Geography (4)** (Formerly numbered 161.) Seminar, three hours. Limited to seniors. Writing and research are two key aspects of what human geographers do. Students improve writing through proposing and conducting self-directed research project. Students should come with idea of topic of interest. Students learn process of doing geography research, including how to ask good research questions, how to search for relevant sources, how to construct argument, how to build literature review, and how to properly cite and incorporate academic sources. Culminating final paper on topic of choice. Weekly class workshops offer opportunity to exchange work with peers, giving useful feedback and opportunity to learn how to offer feedback and how to incorporate feedback into editing their work. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Geography (4)** Seminar, three hours. Research seminars on selected topics in geography. Some sections may require prior coursework. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward departmental majors and minors. P/NP or letter grading.

**195. Community or Corporate Internships in Geography (4)** Tutorial, four hours. Limited to juniors/seniors. Internship of eight to 10 hours per week in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

**198A. Honors Research in Geography I (4)** Tutorial, to be arranged. Preparation: 3.25 grade-point average overall, at least five upper-division geography courses with 3.5 grade-point average. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of one or two faculty members. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

**198B. Honors Research in Geography II (4)** Tutorial, to be arranged. Preparation: 3.25 grade-point average overall, at least five upper-division geography courses with 3.5 grade-point average. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of one or two faculty members. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

**199. Special Study. (2 to 8)** Tutorial, to be arranged. Limited to juniors with B average in major or seniors. May be repeated for maximum of 16 units. P/NP or letter grading.

## Graduate

**200A. History and Structure of Modern Geography (4)** Lecture, three hours; reading period, one hour. Evolution of field of geography in 19th and 20th centuries, with emphasis on professionalization of geography and its emergence as modern academic discipline. S/U or letter grading.

**200B. Seminar: Geographical Inquiry (1)** Seminar, one hour. Discussion of geographical research within context of philosophical debates concerning nature of scientific inquiry. S/U grading.

**201. Research Design in Geography (4)** Lecture, four hours. Introduction to logic of geographic inquiry. Topics include questions surrounding philosophy of science, research design issues, and range of methodologies available to and implemented by geographers to enable students to evaluate geographic literature critically. S/U or letter grading.

**202. Qualitative Methods and Methodology (4)** Seminar, three hours; laboratory, two hours. Examination of definition and use of qualitative methodology and methods in social-cultural geographic research. Exploration of relationship between methodology and epistemology; review of range of research methods and techniques, including interviewing and focus groups, observation, action research, ethnography, and interpretation of material culture, and consideration of ethical and practical issues of conducting qualitative research. S/U or letter grading.

**204. Statistical Methods for Geographic Research (4)** Lecture, three hours; laboratory, two hours. Prerequisite: course M171. Use of linear models, discriminant functions, and factor analysis to analyze problems in geography. S/U or letter grading.

**205. Spatial Statistics (4)** (Same as Statistics M222 and Urban Planning M215.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

**206. Introduction to Biophysical Modeling of Land Surface Processes and Land/Atmosphere Interactions (4)** (Same as Atmospheric and Oceanic Sciences M206.) Lecture, two hours; laboratory, one hour; reading period, one hour. Designed for graduate students. Presentation of introductory knowledge for graduate students to understand nature, principles, and scope of biophysical modeling of land surface processes, including ideal canopy model, radiation, heat and CO<sub>2</sub> fluxes transfer, and satellite data application. Laboratory sessions included. S/U or letter grading.

**208. Geographic Data Visualization and Analysis (4)** Lecture, three hours; laboratory, two hours. Prerequisites: course 168, Statistics 12. Development of broad base of knowledge and set of skills that foster conduct of high-quality geographic data analysis. S/U or letter grading.

**211. Remote Sensing of Environment (4)** Laboratory, three hours; independent study, two hours. Prerequisite: course 167. Study of aerial photographs and other remote sensing images as tools for geographical research. Particular attention to analysis of landscapes and interpretation of interrelationships of individual features in their physical and cultural complex. S/U or letter grading.

**212. Physical, Mathematical, and Computational Basis of Remote Sensing (5)** Lecture, three hours; laboratory, two hours. Intensive review and analysis of fundamental physics, mathematics, and computer science that underlie modern remote sensing and application of this knowledge to modern geographical problems. May be repeated for credit with topic change. S/U or letter grading.

**214. Advanced Projects in Geographic Information Systems (GIS)/Remote Sensing (4)** Lecture, one hour; laboratory, three hours. Recommended prerequisite: course 169 or 170 or Earth, Planetary, and Space Sciences 150. Familiarity with GIS or image processing package expected. Individualized research projects conducted on UNIX platforms within structured course environment. All aspects of modest but original project, including data acquisition, ingestion, and analysis; interpretation of results and presentation in publication-style format. Letter grading.

**215. Advanced Field and Laboratory Methods in Biophysical Geography (4)** Laboratory, five hours; fieldwork, five hours. Examination of advanced field and laboratory procedures used in contemporary biophysical geography research. May be repeated for credit with instructor change. S/U or letter grading.

**216. Advanced Field Analysis: Biogeography (8)** Fieldwork, 10 hours. Observation, measurement, and analysis of biogeographic phenomena, including identification and evaluation of biotic populations and communities and their modifications resulting from impact of human activity. S/U or letter grading.

**218. Advanced Medical Geography (4)** Lecture, two hours; discussion, one hour; reading period, one hour. Requisite: course 118. In-depth study of selected topics in medical geography and intense review of recent research. S/U or letter grading.

**224. International Migration (4)** (Same as Sociology M236B.) Lecture, three hours. Further exploration of key current theoretical debates in study of international migration, with emphasis on exploring both theoretical debates of field and empirical data and case studies on which those debates hinge, to encourage students to undertake research in field. S/U or letter grading.

**229A. Development Theory (4)** (Same as Urban Planning M234A.) Lecture, three hours. Review of basic literature and schools of thought on development theory through analysis of impact of mercantilism, colonialism, capitalism, and socialism on various urban and rural social and economic structures in Third World. Presentation, through evaluation of theoretical writings and case studies, of complexity and diversity of developing countries. Emphasis on linkages between policy and rural and urban impacts. Gives students important background for courses M229B, M229C, and many other planning courses addressing Third World issues. Letter grading.

**229B. Ecological Issues in Planning (4)** (Same as Urban Planning M234B.) Lecture, three hours. Recommended preparation: Urban Planning M265. Science and politics of modern environmentalism and planning in light of transformations inherent in global change, including how to address these questions in ways that go beyond green consumerism and bifurcation of wild, ecological, and human environments. American environmentalism has become dominant model for many conservation practices. Informed by Muirist model of idea of untrammeled nature with people-less set-asides for spiritual and scientific contemplation of nature; this approach used in environmental policy and as key idea in conservation and fragment biology. At opposite end is environmental planning devoted to infrastructure in hyper-human habitats (cities). Exploration of these competing models and many reasons to be skeptical of both in 21st century. Letter grading.

**229C. Resource-Based Development (4)** (Same as Urban Planning M234C.) Lecture, three hours. Recommended preparation: course M229A. Some major issues associated with development of specific natural resources. Topics include nature of particular resource (or region associated with it), its previous management, involvement of state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

**230A. Theories of Regional Economic Development I (4)** (Same as Public Policy M240 and Urban Planning M236A.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

**230B. Globalization and Regional Development (4)** (Same as Urban Planning M236B.) Lecture, three hours. Requisite: course M230A. Application of theories of regional economic development, location, and trade learned in course M230A to contemporary process known as globalization. Examination of nature and effects of globalization on development, employment, and social structure, along with implications for policy. Letter grading.

**235. Seminar: Social Geography (4)** Seminar, three hours; reading period, one hour. Process of doing social/cultural geography entails conceptualizing, adapting, and reformulating social and critical theories of space, subject, and power. Examination of this process by considering theoretical themes that shape concepts of social space and social research. Theoretical discussions of recent research in social/cultural geography, particularly around topics of gender, race sexuality, subjects and spatiality resistance and agenda, and social difference and identity. S/U or letter grading.

**236. Seminar: Cultural Geography (4)** Seminar, three hours; reading period, two hours. Discussions on particular topics in cultural geography. Content may vary from year to year. May be repeated for credit. S/U or letter grading.

**237. Seminar: Historical Geography (4)** Seminar, three hours; reading period, two hours. Theory and practice of historical geography in North America and Europe. May be repeated for credit. S/U or letter grading.

**238. Seminar: Urban Geography (4)** Seminar, three hours; reading period, two hours. Requisite: course 250. Related research projects growing out of course 250. May be repeated for credit. S/U or letter grading.

**240. Seminar: Geographic Thought (4)** Seminar, three hours; reading period, two hours. Designed for graduate students. Discussion and study of topics significant to growth of modern philosophy of geography. S/U or letter grading.

**245. Advanced Political Geography: Geopolitics (4)** Lecture, two hours; discussion, one hour; reading period, one hour. Intensive study of theories and principles of geopolitics. Selected regions used as examples of differing techniques of study in geopolitics. S/U or letter grading.

**247. Advanced Topics in Cultural Geography (4)** Seminar, two hours; discussion, one hour; reading period, one hour. Requisite: course 133. Lectures and discussions around specific aspects of development of cultural landscape in different geographic environments. S/U or letter grading.

**248. Advanced Topics in Economic Geography (4)** Seminar, three hours; reading period, three hours. Designed for graduate students. Advanced study of economic theories and principles S/U or letter grading.

**249. Advanced Population Geography (4)** Lecture, three hours; reading period, one hour. Requisite: course 142. Study of population dynamics and migration, spatial variation in population composition, and population resource problems, diffusion, and epidemiology. S/U or letter grading.

**250. Advanced Topics in Urban Geography (4)** Seminar, two hours; discussion, one hour; reading period, one hour. General study of hierarchy of urban places, including diffusion within urban hierarchy and theories to account for location and size distribution of cities. S/U or letter grading.

**255. Physical Basis of Geography (4)** Lecture, three hours; reading period, one hour. Critical evaluation of formative influences, paradigm shifts, and present challenges of physical geography, illustrated from historical developments and changing research frontiers in geomorphology, climatology, oceanography, hydrology, and soils. S/U or letter grading.

**256. Regional Climate and Terrestrial Surface Processes (4)** Seminar, three hours. Designed for graduate students. Physical concepts and basic principles of land-surface/atmosphere interactions. Exploration of topics in terms of regional and global perspective and implications. Human activities cause changes in land cover, which in turn affect regional climate. Some regions, in particular, appear to be hot spots. Regions to be studied in detail. S/U or letter grading.

**257. Land Degradation (4)** Seminar, three hours. Discussion on impact of human activities and institutions on terrestrial ecosystems and goods and services they provide. Topics vary from year to year. May be repeated for credit with topic change. S/U or letter grading.

**258. Human Security and Environmental Change (4)** Seminar, three hours. Discussion of impact of environmental change on food, water, and physical security of human populations and societies' adaptations to environmental change. Topics vary from year to year. S/U or letter grading.

**260. Evolution, Ecology, Environmentalism, and Roots of Modern American Geography (4)** Seminar, three hours; reading period, one hour. Discussion of how contemporaneous development of modern concepts of evolution, ecology, and environmentalism influenced, and were influenced by, development of modern geography as academic discipline. S/U or letter grading.

**265. Environmentalisms: Climate Dimensions and Politics Past, Present, Future (4)** (Same as Urban Planning M265.) Lecture, three hours; discussion, one hour. Review of environmental theories and their practices in dynamic U.S. and international contexts. Issues of climate change, scenario planning, and matrix ecology and its implications in both urban and rural settings. Exploration of problematics of increasing internationalization (or international implications) of environmental practices as part of both green and black economies. What does integrated environmental planning look like in this century? Letter grading.

**270A. Seminar: Climate Dynamics. (2 to 4)** (Same as Atmospheric and Oceanic Sciences M272A and Earth, Planetary, and Space Sciences M270A.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**270B. Seminar: Climate Dynamics. (2 to 4)** (Same as Atmospheric and Oceanic Sciences M272B and Earth, Planetary, and Space Sciences M270B.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**270C. Seminar: Climate Dynamics. (2 to 4)** (Same as Atmospheric and Oceanic Sciences M272C and Earth, Planetary, and Space Sciences M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice

sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

**271. Seminar: Climatology (4)** Seminar, three hours; reading period, one hour. Requisite: course 280. Selected topics. May be repeated for credit. S/U or letter grading.

**272. Seminar: Biogeography (4)** Seminar, three hours; reading period, two hours. Requisite: course 281. Related research projects growing out of course 281. May be repeated for credit. S/U or letter grading.

**274. Seminar: Humid Tropics (4)** Seminar, three hours; reading period, two hours. Designed for graduate students. Selected topics. Biophysical and cultural complexes of humid tropics, with emphasis on problems related to human settlement and livelihood. May be repeated for credit. S/U or letter grading.

**277. Coastal Geography (4)** Seminar, three hours. Discussion of various coastal topics from biophysical, ecological, and human perspectives. Content may vary from year to year. May be repeated for credit. S/U or letter grading.

**280. Advanced Climatology (4)** Lecture, three hours; laboratory, one hour. Preparation: proficiency with a statistical coding program such as MATLAB, R, or Python, and prior coursework in the fields of climate and environmental science. Students determine a question or set of questions to be addressed in the final project. Questions are addressed using Coupled Model Intercomparison Project Phase 6 (CMIP6) data outputs from the climate-model simulations performed for the most recent report by the Intergovernmental Panel on Climate Change (IPCC). Student-led computer analysis of data. Oral presentation of final project results. S/U or letter grading.

**281. Advanced Topics in Biogeography (4)** Lecture, two hours; discussion, one hour; reading period, one hour. Requisites: courses 108, and 110 or 116. Intensive review and analysis of physical and cultural factors influencing plant distributions. S/U or letter grading.

**283. Advanced Topics in Geomorphology (4)** Lecture, two hours; discussion, one hour; reading period, eight hours. Preparation: two courses from 101, 105, M107. Requisite: course 100. Analysis of geomorphic theories since scientific revolution, with emphasis on catastrophism, uniformitarianism, glacial theories, isostasy and eustasy, evolution and cyclicity, thermodynamics and mechanics, quantification, and current paradigms. View of each theme in its contemporary milieu. S/U or letter grading.

**286. Advanced Topics in Environmental Change (4)** Seminar, three hours; reading period, two hours; fieldwork, three hours. Preparation: one course from 271, 280, 283, or one appropriate graduate course in atmospheric and oceanic sciences or Earth, planetary, and space sciences. Analysis of changing physical environment of Quaternary period. May be repeated for credit. S/U or letter grading.

**290. South America (4)** Seminar, three hours; reading period, two hours. Introduction to main issues in geography of South America, with focus mainly on cultural/historical geographical perspectives on national period; themes and periods can be adapted to individual interests. S/U or letter grading.

**291. Geography of Contemporary China (4)** Seminar, three hours; reading period, two hours. Designed for graduate students. May be repeated for credit. S/U or letter grading.

**292. Seminar: Political Geography of Italy (4)** (Formerly numbered M241.) (Same as Italian M241.) Seminar, three hours; reading period, two hours. Themes in political geography with particular emphasis on Italy. May be repeated for credit. S/U or letter grading.

**298. Advanced Regional Geography: Selected Regions (4)** Lecture, three hours; discussion, one hour. Preparation: appropriate upper-division regional course. Lecture series devoted to one specific region at discretion of instructor. May be repeated for credit. S/U or letter grading.

**299A. Research Group Seminars: Issues in Human Geography (1)** Seminar, one hour. Bimonthly seminar to discuss current research in human geography. Topics vary from year to year. May be repeated for credit. S/U grading.

**299B. Research Group Seminars: Issues in Biophysical Geography (1)** (Formerly numbered C299B.) Seminar, one hour. Bimonthly seminar to discuss current research in biophysical geography. Topics vary from year to year. May be repeated for credit. S/U grading.

**299C. Cultural Geography Methods Workshop (1)** Seminar, two hours. Bi-weekly forum for presentation and discussion of new concepts, theories, and methods at juncture of geography, humanities, and environmental study. Principal focus on landscape, but scope of cultural study within geography also embraced. S/U grading.

**299D. Political Geography Working Group (1)** Seminar, two hours. Limited to graduate students. Biweekly forum for analysis of current geopolitics, with emphasis on geographic impacts of recent global events. S/U grading.

**299E. Agriculture and Food Studies Colloquium (1)** Seminar, one hour. Current scholarly debates surrounding topics on agriculture and food. Interdisciplinary discussion, with focus on research that explores confluence of production and consumption studies vis-à-vis agriculture and food. Group discussion of recently published work, works-in-progress by participants, and distinguished guest speakers. S/U grading.

**401. Applied Geospatial Data Science (4)** Lecture, two hours; laboratory, two hours. Project-based exploration of essential methods and techniques in geographic information systems (GIS) and geospatial technology with focus on modeling, spatial analysis and geoprocessing, spatial data manipulation, geo-computation, and data visualization. Students apply advanced geospatial analysis and data visualization methods to addressing real-world problems and answering geographic research questions. Topics include research design, automation, and multi-step geospatial analysis methodology. Letter grading.

**410. Geospatial Databases and Data Management (4)** Lecture, two hours; laboratory, two hours. Requisite: course 401 (may be taken concurrently). Design, development, and management of geospatial databases, including databases used in shared and scalable enterprise geographic information systems (GIS) platforms. Introduction of relational database theory and design, database performance, and user access considerations. Students learn to develop and work with enterprise database systems that support large datasets and simultaneous access by many users. Introduction of enterprise GIS systems and techniques facilitating concurrent editing of shared spatial databases. Letter grading.

**411. Geospatial Imagery Analysis (4)** Lecture, two hours; laboratory, two hours. Requisite: course 401. Introduction to field of remote sensing and image analysis, primarily involving environmental monitoring and Earth observation from space. Core concepts in remote sensing, processes by which images are captured by sensors mounted on remote platforms including satellites and airplanes, and key characteristics of captured imagery. Project-based instruction in techniques for processing, analyzing, and visualizing remotely sensed imagery and raster data with proprietary, open-source, and cloud-based remote sensing and image analysis platforms. Letter grading.

**412. Programming for Geospatial Data Science I (4)** Lecture, two hours; laboratory, two hours. Requisite: course 401. Conceptual and practical instruction in use of scripting, automation, and computer programming within geospatial sciences. Students use Python programming language to develop geospatial processing scripts and applications, making use of popular geospatial data manipulation libraries. Introduction of computer programming concepts and theory in practical context. Letter grading.

**413. Applied Geospatial Statistics (4)** Lecture, two hours; laboratory, two hours. Requisite: course 401. Concepts and techniques fundamental to spatial statistics and analysis and visualization of data with geographic dimension. Introduction to statistical computing and tabular data processing and analysis techniques. Students learn to apply common spatial analysis methods in practical context. Emphasis on essential concepts in spatial statistics, including spatial relationships, spatial autocorrelation analysis, cluster analysis, spatial regression analysis, point-pattern analysis, and space-time modeling. Letter grading.

**414. Programming for Geospatial Data Science II (4)** Lecture, two hours; laboratory, two hours. Requisite: course 401. Introduction to technologies and techniques that support growing field of interactive Web-based geographic information systems and mapping. Study of theory and concepts underlying this rapidly growing field. Applied training is provided in Web map design, development, and programming. Students learn to develop sophisticated interactive Web maps and applications both by using existing Web mapping platforms and also by coding custom Web maps integrating HTML, CSS, JavaScript programming language, and Web mapping code libraries. Letter grading.

**415. Geospatial Data Science Futures (4)** Seminar, two hours; laboratory, two hours. Requisite: course 401. Applied exploration of emerging technologies and methods in geospatial technology with focus on learning state-of-art geospatial data analysis and management techniques. Topics of interest introduced in seminar format by subject matter experts and faculty. Through discussions and biweekly applied project work, geospatial research methods are situated in their broader context. Application of innovative geospatial research methods to better understanding spatial dimension of data. Letter grading.

**495. Teaching College Geography (2)** Seminar, one hour; laboratory, three hours. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit. S/U grading.

**498. Capstone I: Geospatial Research Methods (4)** Seminar, two hours; laboratory, two hours. Requisite: course 401. Instruction in core geospatial project management and research design techniques, as well as geospatial tech-

nology research methods. Structured environment for students to propose and begin capstone project. Includes study of appropriate and ethical application of geospatial methods and technology. Projects proposed should be original analyses of geospatial data that solve pressing problem, optionally developed in conjunction with university or industry partner. Letter grading.

**499. Capstone II: Geospatial Capstone Project (4)** Laboratory, four hours. Requisites: courses 401, 498. Completion of required capstone research project. Students meet weekly with faculty adviser to discuss progress, learn technical writing skills, and chart goals for timely completion of project. Successful completion and approval of capstone project is required for satisfactory completion of course. May be repeated for credit. Letter grading required to meet MAGIST program requirements. S/U or letter grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**597. Preparation for PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. Independent study. May be repeated for credit. S/U grading.

**598. Research for and Preparation of MA Thesis. (2 to 8)** Tutorial, to be arranged. Independent study. May be repeated for credit. S/U grading.

**599. Research for and Preparation of PhD Dissertation. (2 to 12)** Tutorial, to be arranged. Independent study. May be repeated for credit. S/U grading.

# Gerontology

## Gerontology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M104C. Diversity in Aging: Roles of Gender and Ethnicity (4)** (Same as Chicana/o and Central American Studies M106B, Gender Studies M104C, Public Affairs M131, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

**104D. Public Policy and Aging (4)** (Same as Social Welfare M104D.) Lecture, four hours. Examination of theoretical models and concepts of policy process, with application to aging policy. Analysis of decision-making processes that affect aging policy. Description of history of contemporary aging policy. Exploration of current policy issues affecting elderly. P/NP or letter grading.

**104E. Social Aspects of Aging (4)** (Same as Social Welfare M104E.) Lecture, four hours. Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around key aspect of social gerontology. P/NP or letter grading.

**108. Biomedical, Social, and Policy Frontiers in Human Aging (5)** (Same as Public Affairs M130 and Social Welfare M108.) Lecture, four hours. Limited to juniors/seniors. Course of human aging charted in ways that are based on variety of recent research frontiers. Use of conceptual frameworks to increase relevance of aging to students' lives and enhance their critical thinking—biopsychosocial approach that is based on recognition that aging is inherently interdisciplinary phenomenon, and life course perspective that is distinguished by analytical framework it provides for understanding interplay between human lives and changing social structures, and allows students to understand how events, successes, and losses at one stage of life can have important effects later in life. Focus on individuals as they age within one particular sociohistorical context. Letter grading.

**119O. Psychology of Aging (4)** (Same as Psychology M119O.) Lecture, four hours. Requisite: Psychology 115. Designed for juniors/seniors. Aging refers to developmental changes occurring at end stages of life. Some alterations that occur represent improvement, others are detrimental. Examination of impact of aging process on mental phenomena and exploration of ways in which positive changes can be maximally utilized and impact of detrimental alterations minimized. P/NP or letter grading.

**119X. Biology and Behavioral Neuroscience of Aging (4)** (Same as Psychology M119X.) Lecture, three hours. Designed for juniors/seniors. Biologic mechanisms of aging process and its terminal phase, death, have been increasingly studied in recent years. Establishment of what is known experimentally about biology and behavioral neuroscience of aging and evaluation of theories developed to account for this knowledge. P/NP or letter grading.



**120. Sex and Aging (4)** Lecture, three hours. Sexuality in aging from psychological, psychobiological, physical, and psychosocial perspectives, with emphasis on differences between females and males concerning physical and social changes that occur with aging and how this impacts on emotional well-being and human sexual response. P/NP or letter grading.

**142XP. Intergenerational Communication across Lifespan (4)** (Formerly numbered M142SL.) (Same as Public Affairs M129XP and Social Welfare M142XP) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psychological, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

**150. Sociology of Aging (4)** (Same as Sociology M150.) Lecture, three hours; discussion, one hour. Study of sociological processes shaping definition, experience, and response to aging in contemporary society. Topics include race, class, and gender in aging over life course; interpersonal relations and social worlds of aged; caregiving relations and institutions; professions concerned with aged and aging. Letter grading.

**165. Disability Policy and Services in Contemporary America (4)** (Same as Disability Studies M130 and Social Welfare M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Community or Corporate Internships in Gerontology. (2 to 4)** Tutorial, six to 12 hours. Requisite: course M108, or Clusters 80A and 80BX. Limited to juniors/seniors. Students propose their own ideas for internship project and petition for its approval. Approval of internship is contingent on position having relevance in field of gerontology. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research or Senior Project in Gerontology (4)** Tutorial, to be arranged. Requisites: course M108, or GE Clusters 80A and 80B. Limited to juniors/seniors. Supervised individual research under guidance of gerontology faculty mentor. Submission of weekly writing assignments and research paper at end of term. Eight units of 199 (or 195CE) required for successful completion of minor. Individual contract required. Information and contracts may be obtained from Gerontology Advising Office. Letter grading.

# Global Health

## Global Health Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Global Health and Development (4)** Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary examination of key issues in area of global health, with focus on developing world. Provides basis for understanding current debates that frame global health problems and actions in and across nations with strikingly different political-economic contexts. Discussion of how local and international communities attempt to address challenges of global health problems and how interventions play out through range of policy and programmatic approaches. P/NP or letter grading.

**110A. Field Studies in Global Health (4)** Seminar, three hours. Enforced corequisite: course 110B. Exploration of issues regarding global health in important locations around world. Hands-on experiential course offered for students participating in UCLA Travel Study Program. Field trips included to gain firsthand experience. May be repeated with topic and/or location change. Offered in summer only. P/NP or letter grading.

**110B. Field Studies in Global Health (4)** Seminar, three hours. Enforced corequisite: course 110A. Exploration of issues regarding global health in important locations around world. Hands-on experiential course offered for students participating in UCLA Travel Study Program. Field trips included to gain firsthand experience. May be repeated with topic and/or location change. Offered in summer only. P/NP or letter grading.

**140. Equity-Focused Program Evaluation in Global Health: Theory and Practice (4)** Lecture, three hours; discussion, one hour. Requisite: course 100. Interdisciplinary approach to provide solid understanding of equity-focused evaluation theories and practices. Discussions are guided by principles of equity and human rights-based approach to global health. Focus on evaluation of policies, programs, and equitable delivery of health services for most vulnerable and marginalized populations. Case studies to learn about equity-focused research and evaluation concepts and methodology. Case study topics include impact of COVID-19 pandemic and response to it in relation to our students. For instance, COVID-19 has had greater impact on African American, Latin American, and indigenous communities than on white populations, and it has unmasked disparities in access to health care, education, and technology, which often reflect in student performance. Students are encouraged to examine relevance of class discussions in their own communities and in terms of their aspirations for creating better, more equitable, and healthier world. P/NP or letter grading.

**150. Migration and Health (4)** Lecture, three hours; discussion, one hour. Introduction to history, current status, and future of migration and health using social determinants of health model to foster multidisciplinary analysis of status of migrant health around world. Exploration of social determinants of

health affecting migrating populations, including gender, race, ethnicity, socioeconomic status, poverty, religion, politics, governance, and environment. Letter grading.

**160. Selected Topics in Global Health (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to global health. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Senior Research Seminar: Global Health (4)** Seminar, three hours. Requisite: course 100. Designed for Global Health minors. Research seminar on selected topics in Global Health. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topic to be offered in specific term. May be repeated for credit with topic change. Letter grading.

**199. Directed Research in Global Health (4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be applied toward requirements via petition. May be repeated for credit. Individual contract required. Letter grading.

# Global Jazz Studies

## Global Jazz Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**25. Global Pop (5)** (Same as Ethnomusicology M25.) Lecture, four hours; discussion, one hour. Development of world music or world beat, including its meaning and importance to contemporary culture as well as its history and impact. P/NP or letter grading.

**35. Blues, Society, and American Culture (5)** (Same as Ethnomusicology M35.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of blues music tradition from its roots in West Africa to its emergence in African American oral culture, with emphasis on philosophical underpinnings and social and political impact of blues and its influence on development of country, jazz, gospel, rhythm and blues, rock, hip-hop music, and other mediums. P/NP or letter grading.

**50A. Jazz in American Culture: Late 19th Century through 1940s (5)** (Same as Ethnomusicology M50A.) Lecture, four hours; discussion, one hour. Course M50A is not requisite to M50B. Survey of development of jazz in American culture. Discussion of different compositional/performance techniques and approaches that distinguish different sub-styles of jazz from one another, as well as key historical figures that shaped development of jazz from its early years through modern jazz. Important historical social issues (segregation, Depression, World War II, Civil Rights Movement) that intersect with history of U.S. and jazz music. P/NP or letter grading.

**50B. Jazz in American Culture: 1940s to Present (5)** (Same as Ethnomusicology M50B.) Lecture, four hours; discussion, one hour. Course M50A is not requisite to M50B. Survey of development of jazz in American culture. Discussion of different compositional/performance techniques and approaches that distinguish different sub-styles of jazz from one another, as well as key historical figures that shaped development of jazz from its early years through modern jazz. Important historical social issues (segregation, Depression, World War II, Civil Rights Movement) that intersect with history of U.S. and jazz music. P/NP or letter grading.

**66. Global Jazz Studies Composition Studio (2)** Studio, one hour per week to be arranged with instructor; outside study, five hours. Limited to Global Jazz Studies majors. One-on-one composition lessons with assignments and compositions tailored to student progress and level of achievement. Lessons address various, cross-cultural concepts in harmonic, melodic, and rhythmic construction, orchestration, analyses of global jazz masterworks, form, texture, style, notation, ornamentation, improvisation, and performance feasibility. May be repeated for credit. P/NP or letter grading.

**71A. Instruction in Jazz Performance: Guitar (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71B. Instruction in Jazz Performance: Percussion (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71C. Instruction in Jazz Performance: Piano (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71D. Instruction in Jazz Performance: Saxophone (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71E. Instruction in Jazz Performance: String Bass (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71F. Instruction in Jazz Performance: Trombone (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71G. Instruction in Jazz Performance: Trumpet (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**71I. Instruction in Jazz Performance: Voice (2)** Studio, one hour of individual instruction. Limited to Global Jazz Studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Cross-Cultural Perspectives in Jazz (4)** Lecture, four hours. Exploration of assimilation and retention of jazz from U.S. in various countries, with particular emphasis on cultural and social features that form basis for new jazz-ethnic music blends. Letter grading.

**103. Creating Musical Community (4)** (Same as Ethnomusicology M103, Music M103, and Musicology M103.) Seminar, four hours; discussion, one hour. Limited to school of music majors. Faculty and students make music together in different modes. Students learn certain repertoire, refine it, and bring it to concert performance. Students critically engage musical literacies and notion of social contract that forms basis of musical notation. Drawing from American music folk game traditions, highlights complex history of this country and way in which entire body is used as resource when instruments are unavailable. Letter grading.

**109. Women in Jazz (4)** (Same as African American Studies M109, Ethnomusicology M109, and Gender Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

**110A. African American Musical Heritage (5)** (Formerly numbered M12A.) (Same as African American Studies M116A and Ethnomusicology M110A.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. P/NP or letter grading.

**110B. African American Musical Heritage (5)** (Formerly numbered M12B.) (Same as African American Studies M116B and Ethnomusicology M110B.) Lecture, four hours; discussion, one hour. Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions. P/NP or letter grading.

**111. Ellingtonia (4)** (Same as African American Studies M111 and Ethnomusicology M111.) Lecture, three hours. Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as Ellingtonia, is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

**119. Cultural History of Rap (5)** (Same as African American Studies M107 and Ethnomusicology M119.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

**122A. Jazz Styles and Analysis: Early Jazz to Swing Era (4)** Lecture, four hours; outside study, eight hours. Limited to Global Jazz Studies majors or consent of instructor. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Letter grading.

**122B. Jazz Styles and Analysis: Bebop to Avant-garde (4)** Lecture, four hours; outside study, eight hours. Limited to Global Jazz Studies majors or consent of instructor. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Letter grading.

**122C. Jazz Styles and Analysis: Jazz since Sixties (4)** Lecture, four hours; outside study, eight hours. Limited to Global Jazz Studies majors or consent of instructor. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Letter grading.

**125. Jazz Arranging and Orchestration (4)** Lecture, three hours. Limited to Global Jazz Studies majors. Study of specific instruments and their unique use and application in jazz (jazz notation and terminology, transposition, woodwind doublings, brass mutes, etc.). Analysis of different writing techniques and approaches that distinguish different sub-styles of jazz from one another. Assignments focus on writing for medium and large ensembles, with final project of arrangement to be read by UCLA Jazz Orchestra. P/NP or letter grading.

**127A. Jazz Keyboard Harmony I (2)** Laboratory, two hours; outside study, four hours. Course 127A with grade of C or better is requisite to 127B; course 127B with grade of C or better is requisite to 127C. Study of jazz harmony through use of piano keyboard. Letter grading.

**127B. Jazz Keyboard Harmony II (2)** Laboratory, two hours; outside study, four hours. Requisite: course 127A with grade of C or better. Study of jazz harmony through use of piano keyboard. Letter grading.

**127C. Jazz Keyboard Harmony III (2)** Laboratory, two hours; outside study, four hours. Requisite: course 127B with grade of C or better. Study of jazz harmony through use of piano keyboard. Letter grading.

**128. Exploration in Rhythms (2)** (Same as Ethnomusicology M128.) Lecture, two hours; outside study, four hours. Preparation: ability to read melodic or rhythmic notation. Investigation and exploration of musical time and rhythm in 20th- and 21st-century classical, jazz, world, and popular music. Concepts explored include meter, pulse, rhythmic cycles, hemiolas, and polyrhythms. P/NP or Letter grading.

**129A. Jazz Theory and Improvisation I (2)** Lecture, four hours; outside study, eight hours. Elements of jazz theory and improvisation. Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisation. Letter grading.

**129B. Jazz Theory and Improvisation II (2)** Lecture, four hours; outside study, eight hours. Requisite: course 129A with grade of C or better. Elements of jazz theory and improvisation. Medium-level jazz harmonic constructions. Letter grading.

**129C. Jazz Theory and Improvisation III (2)** Lecture, four hours; outside study, eight hours. Requisite: course 129B with grade of C or better. Elements of jazz theory and improvisation. Advanced-level jazz harmonic constructions. Letter grading.

**130. Culture of Jazz Aesthetics (4)** (Same as Anthropology M158 and Ethnomusicology M130.) Lecture, three hours. Recommended requisite: Anthropology 3 or 4 or Ethnomusicology 20A or 20B or 20C. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

**131. Development of Latin Jazz (4)** (Same as Ethnomusicology M131 and Music M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

**165. Selected Topics in Composition (4)** Lecture, four hours; outside study, eight hours. Preparation: experience and accomplishment in composition. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of

music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. May be repeated once for credit. Letter grading.

**166. Global Jazz Studies Advanced Composition Studio (2)** Studio, one hour; outside study, five hours. Limited to junior/senior Global Jazz Studies majors. One-on-one composition lessons. Focus on technologically informed, 21st-century tendency towards fluidity of mixing numerous compositional genres and techniques with broad array of cultural hybridity. Students create new extended composition based on their extrapolations from series of analyses covered during quarter. May be repeated for credit. P/NP or letter grading.

**171A. Instruction in Advanced Jazz Performance: Guitar (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171B. Instruction in Advanced Jazz Performance: Percussion (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171C. Instruction in Advanced Jazz Performance: Piano (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171D. Instruction in Advanced Jazz Performance: Saxophone (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171E. Instruction in Advanced Jazz Performance: String Bass (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171F. Instruction in Advanced Jazz Performance: Trombone (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171G. Instruction in Advanced Jazz Performance: Trumpet (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**171I. Instruction in Advanced Jazz Performance: Voice (2)** Studio, one hour of individual instruction; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Study of jazz repertoire and techniques for specific instruments and voice. Grades are assigned by studio instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. Letter grading.

**175. Jazz Combo (2)** Activity, two hours; laboratory, four hours. Preparation: audition. Exploration of composition and improvisation more intensely in smaller jazz combination groups of four to eight musicians. May be repeated for maximum of 12 units. Letter grading.

**176A. Large Jazz Ensembles: Contemporary Jazz Ensemble (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176B. Large Jazz Ensembles: Charles Mingus Ensemble (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176C. Large Jazz Ensembles: UCLA Jazz Orchestra (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176D. Large Jazz Ensembles: UCLA Afro Latin Jazz Orchestra (2)** Activity, three hours; outside practice, three hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176E. Large Jazz Ensembles: Ellingtonia Jazz Orchestra (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176F. Large Jazz Ensembles: World Jazz and Intercultural Improvisation Ensemble (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176G. Large Jazz Ensembles: Afro-Cuban Ensemble (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**176H. Large Jazz Ensembles: Commercial Music Studio Ensemble (2)** Activity, two hours; outside practice, four hours. Preparation: audition. Enrollment by consent of instructor. Larger groups of students play in large ensembles, bands, or orchestras. May be repeated for credit without limitation. Letter grading.

**186A. Capstone Seminar (3)** Seminar, two hours; outside study, seven hours. Limited to senior Global Jazz Studies majors. With approval from faculty advisers, students develop and prepare one-hour recital consistent with global dimension of major, and reflect on process. In lieu of recital, students may develop research-based project, which includes comparable public event (e.g., lecture-demonstration or lecture-recital). Letter grading.

**186B. Capstone (1)** Seminar, two hours; outside study, seven hours. Limited to senior Global Jazz Studies majors. With approval from faculty advisers, students perform (or have compositions performed in) one-hour recital consistent with global dimensions of major, contributing substantial program notes. Students who have developed alternative capstone projects present work in public event comparable to recital (e.g., lecture-demonstration or lecture-recital). Letter grading.

**188. Special Topics in Global Jazz Studies. (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Selected topics in global jazz studies. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

**195. Community or Corporate Internships in Global Jazz Studies (4)** Tutorial, six to 12 hours. Limited to junior/senior Global Jazz Studies majors with minimum cumulative 3.0 grade-point average. Internship in supervised setting in community agency or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

**196. Jazz Teaching Practicum (4)** Seminar, two hours; fieldwork, four hours; outside study, seven hours. Limited to junior/senior Global Jazz Studies majors. Integration of academic work and hands-on training in outreach program. Participation in theoretical discussions of jazz education and application of these theories in elementary and secondary music and social studies classrooms. P/NP or letter grading.

**197. Individual Studies in Global Jazz Studies. (2 to 4)** Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to senior Global Jazz Studies majors. Individual intensive study with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Global Jazz Studies. (2 to 4)** Tutorial, to be arranged. Limited to junior/senior Global Jazz Studies majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

# Global Studies

## Global Studies Courses

### Lower Division

**1. Introduction to Globalization (5)** Lecture, three hours; discussion, one hour. Introduction to concept and history of globalization, and to political, economic, social, and environmental dimensions of global integration today. Topics include finance and trade, colonialism, Industrial Revolution, urbanization, immigration, and climate change, among others. P/NP or letter grading.

**10. International Diplomacy and Foreign Affairs (2)** Lecture, 15 hours; discussion, 15 hours. Limited to high school students participating in Model United Nations (UN) Summer Institute. One-week intensive summer course, including lectures in international relations and outside study. Development of position papers in simulation of United Nations and final presentation in respective UN committees. Particular emphasis on public speaking and cooperative debate. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102. Globalization: Markets and Resources (5)** Lecture, three hours; discussion, one hour. Requisite: course 1. Examination of how domestic and international politics determine how global economy is governed. Topics include monetary and capital policy, trade, international investment, and migration. Letter grading.

**103. Globalization: Governance and Conflict (5)** Lecture, three hours; discussion, one hour. Requisite: course 1. Exploration of globalization of governance and its effect on outbreak, management, and resolution of disputes, violence, and conflict. Review of international and regional institutions and their interaction with contemporary issues, which may include terrorism, human rights, climate change, and cybersecurity. Letter grading.

**104. Globalization: Culture and Society (5)** Lecture, three hours; discussion, one hour. Requisite: course 1. Investigation of circulation of peoples, goods, and media to examine interactions of globalization with local culture and formation of global cultures through practices and processes of globalization. Letter grading.

**110A. Globalization in Context (5)** Lecture, six hours. Requisite: course 100B. Corequisite: course 110B. Culture, economy, history, and politics of different locations around world and how they are affected by globalization. Field trips included to gain first-hand experience of these processes. Offered in summer only. P/NP or letter grading.

**110B. Globalization in Context Research Seminar (5)** Seminar, six hours. Requisite: course 100B. Corequisite: course 110A. Individual research projects on different aspects of globalization process in locations around world. Offered in summer only. P/NP or letter grading.

**112AD. Globalization in Context: Markets and Resources (5)** Lecture, six hours. Requisite: course 102. Corequisite: course 112BD. Examination of development of markets and businesses in globalized world. Field trips included to gain first-hand experience of these processes. Offered in summer only. P/NP or letter grading.

**112BD. Globalization in Context Seminar: World Markets and Resources (5)** Seminar, six hours. Requisite: course 102. Corequisite: course 112AD. Examination of role of markets and businesses in globalized world. Offered in summer only. P/NP or letter grading.

**113AD. Globalization in Context: Governance and Conflict (5)** Lecture, six hours. Requisite: course 103. Corequisite: course 113BD. History, politics, philosophy, and governance of global governance and how they are affected by globalization. Field trips included to gain first-hand experience of these processes. Offered in summer only. P/NP or letter grading.

**113BD. Globalization in Context Seminar: World Governance (5)** Seminar, six hours. Requisite: course 103. Corequisite: course 113AD. History, politics, philosophy, and governance of global governance and how they are affected by globalization. Offered in summer only. P/NP or letter grading.

**114AD. Globalization in Context: Culture and Society (5)** Lecture, six hours. Requisite: course 104. Corequisite: course 114BD. Culture, economy, history, and politics of race, gender, and religion and how they are affected by globalization. Field trips included to gain first-hand experience of these processes. Offered in summer only. P/NP or letter grading.

**114BD. Globalization in Context Seminar: World Culture and Society (5)** Seminar, six hours. Requisite: course 104. Corequisite: course 114AD. Individual research projects on different aspects of globalization process in locations around world, including racial and gender identities. Offered in summer only. P/NP or letter grading.

**120. Introduction to International Business (4)** Lecture, three hours; discussion, one hour (when scheduled). Over last five decades, world has increasingly become globalized, presenting many new opportunities for businesses and entrepreneurs. However, recent world events have demonstrated volatile nature of globalization and pitfalls that can also manifest for firms doing business in global setting. Students gain understanding of dynamic environment of international business, and how firm managers navigate complex world of international business to capitalize upon opportunities and mitigate against risks. P/NP or letter grading.

**125. Los Angeles as Global City: Exporter and Importer of Global Culture (4)** Lecture, three hours; discussion, one hour. Study of phenomenon of globalization through prominent case of Los Angeles. Focus on how city produces global culture, including filmed entertainment and culture of celebrity and food; and how it absorbs cultural inputs from world over. Emphasis on interactive relationship between export and import of global culture. City's distinct cultural milieu influences nature of its cultural exports, but its viability as cultural capital depends on its ability to accommodate integrate diversity of cultures. Study creates immersive experience through films, guest speakers, and urban field trips. P/NP or letter grading.

**140. Hollywood and the Immigrant Experience in America (4)** Lecture, three hours; discussion, one hour (when scheduled). Hollywood movies and television shows often marginalize performers from Asian, Indian, and Middle Eastern backgrounds and contain negative cultural stereotypes of them. Over the last decade, artists from these immigrant communities have started a marked change in the entertainment industry and are challenging the dominant narrative. Examination of works and writings of unique artists who are redefining the American immigrant experience in the popular imagination. P/NP or letter grading.

**141. Hollywood and Tales of Underrepresented Communities (4)** Lecture, three hours; discussion, one hour (when scheduled). Hollywood movies and television shows often marginalize performers from Central American, South American, and Native American backgrounds and contain negative stereotypes of them. But in recent times, artists from these communities have risen in cultural prominence and they are challenging the dominant narrative. Examination of the works, performances, and writings of artists who are redefining the diversity of the American experience in the popular imagination. P/NP or letter grading.

**145. Rethinking Global Capitalism: Race, Class, Gender, History (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 1. Reconsideration of histories and geographies of global capitalism. Displacing industrial revolution from Britain out into colonial world, transatlantic slave trade, and attempted genocide of indigenous peoples in Americas, study of new map of global capitalism and new histories of globalization. Study covers capitalism; embodiment and gender; capitalism and environmental crisis; and new issues in digital capitalism, gig economy, and social media. Letter grading.

**160. Selected Topics in Global Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to global studies. May be repeated for credit with topic change. P/NP or letter grading.

**161. Special Topics in Global Studies and Public Policy (4)** (Same as Public Policy CM191G.) Seminar, three hours. Examination of one or more topics related to public policy and global studies. May be repeated for credit with topic change. P/NP or letter grading.

**177. Superfoods: Cultural and Global Perspectives (4)** (Same as Food Studies M177 and International Development Studies M177.) Seminar, four hours. Exploration of superfoods, which are nutrient rich foods considered beneficial for well-being, health, and longevity, as they are high in minerals, vitamins, and antioxidants. While superfoods have been part of cultures' diets for centuries, in recent decades they have been researched in scientific and medical communities. Citizens globally have begun to increasingly demand and consume foods that are nutritious, organic, and sustainable. It is important also to address issues such as marketing, misinformation, and hyper about superfoods. Surge of interest in superfoods is increasingly important in context of ongoing global inequities with regards to food access and production. Study addresses paradox that communities cope simultaneously with malnutrition/hunger and obesity, and how farming practices for superfoods and staple crops are related. P/NP or letter grading.

**188A. Special Topics in Global Studies (4)** Seminar, three hours. Program-sponsored experimental or temporary courses, such as those taught by resident or visiting faculty members. May be repeated for credit with topic change. Letter grading.

**188B. Special Topics in Global Studies (4)** Seminar, three hours. Program-sponsored experimental or temporary courses, such as those taught by resident or visiting faculty members. May be repeated for credit with topic change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Global Studies—Senior Seminar (4)** Seminar, three hours. Enforced requisites: courses 110A, 110B. Limited to senior Global Studies majors. Organized on topics basis with readings, discussions, papers, and development of culminating project. May not be repeated for credit. Letter grading.

**192. Undergraduate Practicum in Global Studies (2)** Seminar, two hours; practicum, to be arranged. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to serve as undergraduate course assistants in global studies courses. Students assist in preparation and presentation of materials and development of innovative programs with guidance of faculty members. May not be applied toward major requirements. May be repeated for credit. P/NP grading.

**194. Research Group Seminars (1)** Seminar, two hours. Designed to encourage participation and stimulate progress in specific research areas for undergraduate students who are part of departmental research group or in-

ternship. Discussion of research methods or current literature in field of global studies or of research of faculty members or students. May be repeated for credit. P/NP grading.

**199. Directed Research in Global Studies (4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be applied toward requirements via petition. May be repeated for credit. Individual contract required. Letter grading.

**199A. Directed Research in Global Studies (4)** Tutorial, to be arranged. Limited to senior Global Studies majors. Supervised individual research under guidance of faculty mentor. Culminating paper required or comprehensive outline if pursuing departmental honors. Individual contract required. Letter grading.

**199B. Directed Individual Research in Global Studies (4)** Tutorial, one hour. Requisite: course 199A. Limited to senior Global Studies majors. Supervised individual research or investigation under guidance of faculty mentor. Final drafting and submission of senior thesis. Culminating paper of 35 to 50 pages required. Individual contract required. Letter grading.

# Graduate Student Professional Development

## Graduate Student Professional Development Courses

### Graduate

**495A. Teaching Assistant Pedagogy Seminar (2)** Seminar, two hours. Overview of evidence-based pedagogical theories, strategies, and best practices geared towards preparing first-time teaching assistants to teach at UCLA. Discussion, development, and implementation of pedagogical techniques to promote inclusive teaching and support student learning outcomes. S/U grading.

**496A. Introduction to Evidence-Based Undergraduate Teaching (2)** Seminar, 90 minutes. Designed for graduate students and postdoctoral scholars. Exploration and practice of fundamental principles of learning, backward design, assessment, active learning, and inclusive teaching. Lesson plan design with feedback. Meets associate level of CIRTl certification requirement. May be repeated once for credit. S/U grading.

**496B. Teaching as Research (2)** Seminar, 90 minutes. Prerequisite: course 496A or equivalent. Students become reflective practitioner by applying systematic and reflective use of research methods to develop teaching practices in order to advance learning experiences and outcomes of students and teachers. Students produce proposal for TAR project. May be repeated once for credit. S/U grading.

**496C. Implementing and Communicating Teaching as Research Project. (2 to 4)** Tutorial, three to six hours; research group meeting, two to four hours. Prerequisite: course 496B. Implementation, data analysis, and communication of results of TAR project with feedback and approval of faculty-adviser mentor and peer support in learning community. Meets practitioner level of CIRTl certification requirement. S/U grading.

**497A. Introduction to Course Design (2)** Seminar, three hours. Introduction to evidence-based strategies for course design that are effective for student learning and equitable across modalities of instruction. Participants apply principles of backward design and learner-centered design to articulate transparent learning objectives and align course goals with assessments and learning activities. Suitable for graduate student instructors designing courses from scratch and those modifying existing courses to teach during summer session. S/U grading.

**497B. Collegium of University Teaching Fellows Pedagogy Seminar (2)** Seminar, three hours. Enrollment is limited to Collegium of University Teaching Fellows (CUTF) program students by consent of instructor. Advanced pedagogy seminar with focus on applying evidence-based pedagogies to refine syllabus and scaffolding assignments to support lower-division students who may be new to field of inquiry and/or new to college-level research and writing. S/U grading.

**497C. Approaches to Community-Engaged Teaching (4)** (Formerly numbered 495CE.) Seminar, two hours. Suitable for graduate students in any discipline. Introduction to best practices for community-engaged pedagogy and experiential learning, with emphasis on strategies for collaborating effectively with diverse communities of Los Angeles. S/U grading.

**497R. Integrating Writing and Research in Teaching Practice (4)** (Formerly numbered 497R.) Seminar, two hours. Introduction to strategies for integrating writing and research in instruction, emphasizing research and information literacy skills instruction and UCLA's context. This course is suited Designed for teaching assistants from all departments, and does not require any prior knowledge or teaching experience. S/U grading.

# Health Policy and Management

## Healthcare Administration Courses

### Graduate

**400. Field Studies (4)** Fieldwork, to be arranged. Culmination of fieldwork process that takes approximately one year from internship search process, through actual field placement, to this integrative course. Deliberate consideration and reflection on relationship between summer practicum and principles and competencies of health-care management and policy learned during academic year. Students complete professional management or policy-related consulting report base don organizational problem or health policy issue on which students focused during summer. S/U or letter grading.

**401. Health Care Organization and Financing (4)** Lecture, three hours; discussion, one hour. Limited to Master of Healthcare Administration students. In-depth analysis of organization of health services systems in U.S., using relevant theories, concepts, and models. Discussion of various mechanisms for payment and insurance schemes. Letter grading.

**402. Management and Organizational Behavior in Health Systems (4)** Lecture, three hours; discussion, one hour. Application of contemporary management and organization behavioral theory to systems that provide personal health-care services. Environmental characteristics, decision-making, structure and culture, and processes of health services organizations. Letter grading.

**403. Health-Care Information Systems and Technology (4)** Lecture, three hours; discussion, one hour. Provides strong foundation in health information technology (HIT) for those working in health care, with emphasis on development of knowledge and skill to plan, manage, and implement HIT systems in health-care delivery organizations with clinical and business partners and evolving HIT spaces. Background and evolution of HIT; how it is planned, implemented, and managed; and how it can be productively used by health-care delivery organizations, external research organizations, regulatory organizations, providers, and patients/consumers. Fundamentals of technology, electronic medical records (EMR), electronic health records (EHR), personal health records (PHR), meaningful use, interoperability, and health information exchanges (HIE). Letter grading.

**404. Health-Care Strategy (4)** Lecture, three hours; discussion, one hour. Conceptual, analytical, and technical aspects of environmental assessment and strategy formulation in health delivery organizations, biopharma, and medical technology. Special attention to structure and dynamics of competitive markets, corporate-level strategic planning and marketing, managerial ethics and values, organizational creativity/innovation. Letter grading.

**405. Leadership and Ethics (4)** Lecture, three hours; discussion, one hour. Preparation: completion of immersion course 596. Examination of leaders and leadership in health care and other organizations to provide broad introduction to literature on skills, behaviors, and characteristics of organizational leaders. Relationship and importance of vision, values, change, strategy, and communication. Identification of characteristics of successful leaders. Students evaluate their own leadership style and identify opportunities to further develop their leadership abilities. Letter grading.

**406. Health-Care Marketing (4)** Lecture, three hours; discussion, one hour. Introduction to concepts of health-care marketing. Exploration of principles of market-driven decision-making process. Examination of development of key elements in annual marketing process and of consumer, competitor, company analysis, market segmentation, and target markets. Letter grading.

**407. Digital Health Transformation (4)** Lecture, three hours; activity, one hour. Prepares students to lead digital health transformation by deepening knowledge of health technologies driving innovative health-care delivery. Ten learning modules build analytic and leadership competencies required to advance and accelerate digital health transformation in one's organization, whether it is startup or large, mature health system. Letter grading.

**408. Human Resource Management in Health Care (4)** Lecture, three hours; activity, one hour. Management of human resources in health care system including human resource planning and staffing, training and development, performance appraisal, job design and analysis, and compensation. Letter grading.



**411. Microeconomic Theory for Health Sector (4)** Lecture, three hours; discussion, one hour. Microeconomic aspects of health-care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

**412. Statistics for Health Management Decision-Making (4)** Lecture, three hours; discussion, one hour. Sampling situations, with special attention to those occurring in biological and social sciences. Topics include distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, and sample size. Letter grading.

**413. Health-Care Operations Management (4)** Lecture, three hours; discussion, one hour. Development of skills in analyzing and improving health-care systems and processes by integrating systems analysis, quality management, operations research techniques, exploratory data analytics, and data visualization. Emphasis on use of organizational data, especially time-stamp data, to study processes and outcomes of care, particularly as it relates to flow analysis and improving flow. Hands-on use of computer-based modeling tools, including spreadsheets and spreadsheet add-ins focus on formulating, designing, and constructing models; drawing conclusions from model results; and translating results into written end-user reports to support process improvement and quality improvement efforts. Letter grading.

**414. Health-Care Financial Accounting (4)** Lecture, three hours; discussion, one hour. Examination of purpose and methods of financial accounting (including for profit, not for profit, and governmental), function and organization of finance department, and special industry characteristics affecting financial management (to include third party payers, price or rate-setting and cost-shifting, taxation and health-care incentives, and emerging health-care organizations). Letter grading.

**415. Health-Care Financial Management (4)** Lecture, three hours; discussion, one hour. Concepts of financial management and managerial accounting as applied within health-care industry. Builds managerial financial decision-making skills and key analytical methods used in applications of health-care financial management. Students gain understanding and respond to financial recommendations of advisors, lenders, investors, and other stakeholders by applying concepts such as time value of money, financing approaches, capital planning, and budgeting. Letter grading.

**416. Quality Improvement and Performance Excellence (4)** Lecture, three hours; discussion, one hour. Limited to Master of Healthcare Administration students. In-depth analysis of organization of health services systems in U.S., using relevant theories, concepts, and models. Discussion of various mechanisms for payment and insurance schemes. Letter grading.

**417. Data Analytics and Visualization (4)** Lecture, three hours; discussion, one hour. Exploration of data sources and uses in health care, e.g., electronic medical records, social media, wireless biosensors, system and facility data. Review of hands-on techniques including data management, development of indexes and metrics, choosing and implementing analysis methods and visualizations. Discussion of role of data collection and processing within health care system. Elevate analytical skills and increase capabilities to leverage data to drive strong leadership decisions within management functions, health-care organizations, and health-care industry at large. Letter grading.

**418. Health Reform: Policy and Implementation (4)** Lecture, three hours; activity, one hour. Examination of politics of health policy process and how problems are considered for governmental action, how solutions are identified, and how political forces act on them. Emphasis on both understanding how public policy is made, and how to influence process and how to understand formulation of policy in response to problems and political will of leaders. Covers how health policy is developed, adopted, and implemented; political, institutional, economic, social, and other factors that influence and shape process; and how health care managers can be engaged in policy-making or interpreting policy decisions they must comply with as health care leaders. Letter grading.

**596. Directed Individual Study or Research (1 to 4)** Tutorial, to be arranged with MHA program faculty member. Limited to graduate students. Professional development seminars and workshops. Only 1 unit may be applied toward MHA minimum total course requirement. S/U or letter grading.

**597. Preparation for Master's Comprehensive Capstone Project. (1 to 4)** Tutorial, to be arranged. Limited to graduate students. Reading and preparation for master's comprehensive capstone project. Mandatory and supplemental topic lists approved by student advisory committee. Only 1 unit may be applied toward MHA minimum total course requirement. May be repeated for credit. S/U and letter grading.

# Health Policy and Management Courses

## Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Health Care Systems and Health Policy (4)** Lecture, four hours; discussion, one hour. Limited to nonmajors. Not open for credit to students with credit for course 120. Structure and function of U.S. health care system, health care policy, and issues and forces shaping its future. P/NP or letter grading.

**110. Ethnic, Cultural, and Gender Issues in America's Healthcare Systems (4)** (Same as Asian American Studies M161.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and healthcare delivery in U.S. Letter grading.

**120. Health Care Systems: Structures, Functions, and Policies (5)** Lecture, four hours; discussion, one hour. Prerequisite: Public Health 50B. Limited to Public Health majors. Not open for credit to students with credit for course 100. Introduction to health policy and management focusing on basic concepts underlying health care organization, finance, and policy. Topics include development of U.S. health care system, comparisons to international health care systems, trends in health care spending, role of public and private insurance, care delivery, disparities in health status and health care, and current landscape of health policy reform. Letter grading.

**140. Foundations of Maternal and Child Health (4)** Seminar, four hours. Introduction to field of maternal and child health, with focus on major issues affecting health and well-being of children and families over life course. Emphasis on health, prevention, and supportive programs at different stages of child's life; application of life course health development framework to understand health disparities and implications for policy and practice. Letter grading.

**142. How Health Happens (4)** Lecture, three hours; discussion, one hour. Health develops in homes, communities, workplaces, and in economic, social, and legal environments. The health of a population is a reflection of the values and priorities of the society of which it is a part. Introduction to factors that influence individual health and the health of populations. Topics include economic policy; environment of cities; and shared culture, unequally and at times uneasily. Emphasis primarily on the determinants of health in the U.S., with occasional international perspective for the insights it provides. Study provides students with a holistic understanding of what it takes to create a healthier society with greater health equity. Letter grading.

**168. Healthcare for American Indians (4)** (Same as American Indian Studies CM168.) Lecture, two hours; discussion, one hour. Identification of traditional health beliefs, health practices, and healthcare systems of American Indian tribes to understand role of U.S. government in healthcare services for Indian people. Description of health problems that have affected American Indian people and definition of contemporary health issues and measures taken to raise health status of American Indian people. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

## Graduate

**200A. Health Systems Organization and Financing (4)** Lecture, three hours; discussion, one hour. Limited to graduate health services students. In-depth analysis of health services systems in U.S., using relevant theories, concepts, and models. S/U or letter grading.

**200B. Health Systems Organization and Financing (4)** Lecture, three hours; discussion, one hour. Limited to graduate health services students. In-depth analysis of health services systems in U.S., using relevant theories, concepts, and models. S/U or letter grading.

**201. Topics in Theoretical Epidemiology (4)** (Same as Epidemiology M203.) Lecture, three hours. Emphasis on methods that help to understand how systems operate and how to intervene on them. Exploration of how to characterize human-centered problems that arise, and how to handle complexity as core design and development challenge. Examination of different traditions of studying and modeling (representing) systems, both conceptually and quantitatively, to address questions that arise in public health. Consideration of utility and limitations of these methods for providing insight to stakeholders who are addressing population health problem. S/U or letter grading.

**202. Introduction to Statistics and Research Methods for Health Services Research (4)** Lecture, two hours; laboratory, two hours. Overview of statistical and research methods for health services research. Preparation for subsequent graduate coursework in statistics and leading independent research projects. Students learn to develop analytical skills involving distributions, probability, and descriptive statistics and how they can be applied to public health. S/U or letter grading.

**203A. Microeconomic Analysis for Public Health and Policy (4)** (Same as Public Policy M201A.) Lecture, four hours. Requisite: Mathematics 3A or 3B or 31A. Course M203A is requisite to M203B. Basic concepts of microeconomics, with emphasis on their application to actual situations and their use in problem solving and focus on theory of choice. Extensive use of differential calculus. Letter grading.

**203B. Microeconomic Analysis for Public Health and Policy (4)** (Same as Public Policy M204A.) Lecture, four hours. Requisites: course M203A, and one course from Mathematics 3A, 3B, or 31A. Basic concepts of microeconomics, with emphasis on their application to actual situations and their use in problem solving and focus on theories of firms and markets. Extensive use of differential calculus. Letter grading.

**204A. Seminar: Pharmaceutical Economics and Policy (1)** (Same as Economics M204L.) Seminar, three hours every other week. Requisite: course M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress grading (credit to be given only on completion of courses M204B and M204C).

**204B. Seminar: Pharmaceutical Economics and Policy (1)** (Same as Economics M204M.) Seminar, three hours every other week. Requisite: course M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress grading (credit to be given only on completion of course M204C).

**204C. Seminar: Pharmaceutical Economics and Policy (2)** (Same as Economics M204N.) Seminar, three hours every other week. Requisite: course M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. Letter grading.

**205. Pharmaceutical Policy (4)** (Formerly numbered 205.) (Same as Public Policy M265.) Lecture, three hours. Policy issues pertaining to pharmaceutical sector. Topics include determinants of expenditures on drugs, price setting in industry, health insurance coverage for pharmaceuticals, and research and development process. Letter grading.

**206. Discrimination in Health Care (4)** Lecture, three hours. Overview of health services issues associated with organization, financing, and delivery of healthcare services to vulnerable populations within domestic and international contexts to gain understanding of social, political, economic, and cultural issues that lead to disparities in access, quality, and cost of healthcare services that lead to vulnerability for particular population groups. Introduc-

tion to strategies that have been adopted to address these health disparities. Analysis and development of policy and management options that serve needs of vulnerable populations within healthcare system. Letter grading.

**214. Measurement of Effectiveness and Outcomes of Health Care (4)** Lecture, three hours. Requisites: courses 200A, 200B, M422. Historical perspective for development of health status measures and their utilization in assessment of outcomes and effectiveness in medical care. Review of current methods in context of current research and practice. Letter grading.

**215A. Healthcare Quality and Performance Management (4)** Lecture, four hours. Management and operations of individual units and organizations of American healthcare system. Exploration of ways in which they actually function and how to ensure their quality and effectiveness. Examination of roles, activities, and daily challenges of managers and how these challenges can best be met on day-to-day basis. Emphasis on applied practice with intent being improvement of student managerial competencies and on development of skills to manage operational processes in delivery of health services, primarily directed to improving effectiveness, efficiency, performance, and quality of healthcare services. Quality improvement (QI) techniques such as performance measurement, rapid cycle testing, breakthrough series, and interorganizational collaboration benefit quality and productivity. Letter grading.

**215B. Applied Methods for Improvement/Implementation Science (4)** Lecture, four hours. Planning and management of improvement programs in current work of students and future roles as change agents and leaders of healthcare systems. Training in skills and analytic methods for applying improvement science in clinical settings and health systems. Completion of improvement projects that demonstrate student competence in improvement science. Emphasis on case studies and applications so students gain skills in improvement project design and implementation. Analyses of cases, individual improvement projects, and class discussions to allow students to apply this knowledge to organizational examples. Letter grading.

**216. Special Topics in Health Services: Quality Assessment and Assurance (4)** Seminar, four hours. Fundamental issues in quality assessment, quality assurance, and measurement of health status. S/U or letter grading.

**217. Evidence-Based Medicine and Organizational Change (4)** Lecture, three hours. Requisites: courses 200A, 200B, M422. Designed for graduate students in public health or other health sciences disciplines. Participation of students in critical review and discussion of selected papers dealing with course topics, including clinical trials, meta-analysis, small and large area variations in care, and development and implementation of clinical guidelines. Emphasis on implications for health policy. Letter grading.

**221. Tobacco: Prevention, Use, and Public Policy (4)** (Formerly numbered C221.) Lecture, four hours. Designed for juniors/seniors and graduate students. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in U.S., and international trends in tobacco use. Letter grading.

**225A. Health Services Research Design (6)** Lecture, four hours; laboratory, two hours. Limited to departmental MS and PhD students. Introduction to scope of health services research, conceptualization and design of health services research, choice and assessment of measures for such research, and methods for studies involving direct data collection. Broad overview to conducting health services research, alternative research paradigms, building conceptual models of what students are trying to study, designing and testing measures, and direct data collection issues of survey and questionnaire design, sampling, community engagement, and research ethics. Letter grading.

**225B. Health Services Research Design (6)** Lecture, four hours; laboratory, two hours. Requisite: course 225A. Limited to departmental MS and PhD students. Development of conceptual models for health services research, identification and use of secondary data sources, study design, and its operationalization through regression models. Letter grading.

**225C. Research Methods for Improvement/Implementation Science (4)** Lecture, four hours. Enforced requisite: course 215A or 215B. Design and implementation of studies of dynamic interventions, including improvement initiatives and pragmatic clinical trials. Provides skills in research methods for improvement and implementation studies in clinical settings (including community-based settings) and health systems. Completion of improvement research projects that demonstrate student competence in design and implementation. Fundamentals in research design and methods for conducting rigorous inferential evaluation in real world of implementation science, with emphasis on methods for generalizing results of improvement and implementation studies involving dynamic testing. Emphasis on case studies and applications so students gain skills in design and implementation. Letter grading.

**226A. Readings in Health Services Research (4)** Seminar, four hours. Limited to departmental MS and PhD students. Introduction to research literature in health policy, population health, and health management, with a particular focus on key theoretical models and conceptual frameworks. Letter grading.

**226B. Readings in Health Services Research (4)** Seminar, four hours. Limited to departmental MS and PhD students. Introduction to research literature in health policy, population health, and health management, with a particular focus on key theoretical models and conceptual frameworks. Letter grading.

**227A. Special Topics in Health Services: Seminar Series. (2 to 4)** (Formerly numbered 227B.) Seminar, two hours. Designed for doctoral students. Presentation of proposed or ongoing research projects by faculty members and students, with discussion to determine relevant methodological and policy issues, as well as to offer constructive criticism. Letter grading.

**227B. Special Topics in Health Services: Current Research Issues (2)** (Formerly numbered 227A.) Seminar, two hours. Designed for doctoral students. Review of articles in health services journals nominated as best published during previous year. Analysis of articles to determine contribution to theory, methods, and/or implications for management or policy in health services organizations or health services as field. May be repeated for credit with topic change. Letter grading.

**228. Introduction to Mixed Methods Research (4)** (Same as Community Health Sciences M228.) Seminar, three hours; discussion, one hour. Limited to graduate students. Highly recommended: courses 225A and 225B, or completion of coursework in basic research design and methods. Introduction to mixed methods research, with emphasis on its application to public health research. Equips students with skills to critique mixed method research designs and to design mixed methods research investigation for health issue of interest. Study of different mixed methods research designs commonly used in public health and health services research, including feasibility studies, convergent parallel design, sequential mixed methods, and multiphase studies. Use of combination of didactic and applied techniques. S/U or letter grading.

**230A. Health Economics: Low- and Middle-Income Countries' Perspectives (2)** Seminar, two hours; discussion, two hours. Development of student thinking on how microeconomic theories help us understand determinants of health and behaviors of consumers and providers in health sector. Offers critical framework in evaluating efficiency of health systems in improving health of populations. Health economics field provides public policy tools to evaluate distributional benefits/penalties of policies such as sin taxes, and to assess extent market failures motivate role of governments in financing, organization, and delivery of health care. Emphasis on low- and middle-income country (LMIC) settings. In Progress grading (credit to be given only on completion of course 230B).

**230B. Health Economics: Low- and Middle-Income Countries' Perspectives (2)** Seminar, two hours; discussion, two hours. Development of student thinking on how microeconomic theories help us understand determinants of health and behaviors of consumers and providers in health sector. Offers critical framework in evaluating efficiency of health systems in improving health of populations. Health economics field provides public policy tools to evaluate distributional benefits/penalties of policies such as sin taxes, and to assess extent market failures motivate role of governments in financing, organization, and delivery of health care. Emphasis on low- and middle-income country (LMIC) settings. S/U or letter grading.

**231. History of Public Health (4)** Discussion, three hours. Designed for doctoral students. Emphasis on topics which illuminate current issues in public health policy. Discussion of historical perspectives on healthcare providers, healthcare institutions, healthcare reform movements, public health activities, childbirth, and AIDS. S/U or letter grading.

**232. Leadership Capstone Seminar (4)** Seminar, four hours. Preparation: completion of summer internship requirement. Designed for graduate students completing their master's training in health management and health policy. Examination of leaders and leadership in healthcare and other organizations to provide broad introduction to literature on skills, behaviors, and characteristics of organizational leaders. Relationship and importance of vision, values, change, strategy, and communication. Identification of characteristics of successful leaders. Students evaluate their own leadership style and identify opportunities to further develop their leadership abilities. Letter grading.

**233. Health Policy Analysis (4)** (Same as Community Health Sciences M252.) Lecture, three hours. Requisites: courses 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of lifecycle of public policy. Letter grading.

**234. Health Services Organization and Management Theory (4)** Lecture, two hours; discussion, two hours. Preparation: two upper-division social sciences courses. Application of contemporary organization and management theory

to systems that provide personal health-care services. Environmental characteristics, missions/goals, structure, and processes of health services organizations. S/U or letter grading.

**235. Law, Social Change, and Health Service Policy (4)** Lecture, four hours. Preparation: two upper-division political science or sociology courses. Requisite: course 100. Legal issues affecting policy formulation for environmental, preventive, and curative health service programs. S/U or letter grading.

**236. Microeconomic Theory of Health Sector (4)** (Same as Public Policy M268.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Microeconomic aspects of health-care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

**237C. Issues in Health Services Methodologies (6)** Lecture, four hours; discussion, two hours. Requisites: courses 237A, 237B, Biostatistics 200A, 200B (or 201). Designed for doctoral students. Intended to train students in statistical and economic methods used in health services research, with focus on practical application of advanced regression models. Letter grading.

**239A. Special Topics in Health Services: Introduction to Decision Analysis and Cost-Effectiveness Analysis (4)** Lecture, four hours. Requisites: courses 200A and 200B, or M233. Techniques to assess broad spectrum of medical technologies: therapeutic and diagnostic tests and procedures, clinical practice patterns, public health interventions, and pharmaceuticals. Demonstration of how decision analysis provides basic framework for conducting various economic evaluations. May be repeated for credit with topic change. Letter grading.

**239B. Special Topics in Health Services: Advanced Topics in Decision Analysis and Cost-Effectiveness Analysis (4)** Lecture, four hours. Requisite: course 239A. How to conduct uncertainty analyses, understand methods used to construct quality-adjusted life years (QALYs), conduct Markov analyses, critically analyze large-scale published cost-effectiveness analyses (CEAs), effectively present strengths and limitations of published CEAs to peers, and use advanced features of TreeAge software to construct and analyze CEA models, including Markov models. May be repeated for credit with topic change. Letter grading.

**240. Global Health Institutions, Policies, and Systems (4)** Lecture, four hours. Introduction to global health, from health policy and management perspective. Examination of institutions, from global to local, through lenses including governance, financing, history, and agenda-setting. Discussion of major topics in global health systems, such as human resources and health IT. Through series of short assignments, students' work culminates in final presentation that examines these many dimensions of single topic in global health. S/U or letter grading.

**241. Economics of Health Policy (4)** Lecture, four hours. Requisite: course M236 or doctoral standing. Second-level health economics course, with emphasis on health policy applications, designed to provide more nuanced view of health economics than does course M236. Provides more training for master's students interested in policy, as well as material and insights for doctoral students who may find it useful in thinking about dissertation topics. Emphasis on special characteristics of health and healthcare and how these characteristics can result in market failure and various policy tools that can be used to deal with these failures. Because U.S. is only developed country that has traditionally relied on private insurance, course goes into more detail on that topic. Alternative conceptual models to traditional market one, discussion of proposed U.S. reforms, and examination of systems in selected other countries. Letter grading.

**242. Determinants of Health (4)** (Same as Community Health Sciences M232.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading.

**243. Population Health Approach to Autism Spectrum Disorder (4)** Lecture, three hours. Overview of impact that Autism Spectrum Disorder has on individuals, families, and communities, including access to services, ongoing therapies, and adult vocational and residential placement. Covers opportunities for research and national policy. S/U or letter grading.

**244. Telehealth and Technology (4)** Lecture, four hours. Preparation: working knowledge of Excel, PowerPoint, Internet, and smartphone devices. Connects multiple aspects of Telehealth and how to deploy them in health-care operations setting. Exploration of new devices/technologies, connectivity in wireless world, delivery modalities, and user experience/interface (UX/UI) design. Study teaches ways to apply new technology to facilitate efficient health-care business operations. Students learn how to implement Telehealth interventions, understand its challenges, and optimize data visualization for decision making. S/U or letter grading.

**248. Primary Health Care (4)** (Same as Community Health Sciences M248.) Lecture, four hours. Strongly recommended prerequisite: Public Health 200A, 200B. Recommended prerequisite: course 240 or Community Health Sciences 200. Primary Health care (PHC) is considered to be foundation of all health systems and should be able to resolve 80 percent or more of population's health problems. Overview of organization, structure, and functions of primary health care with emphasis on low- and middle-income country settings. Study of history and origins of PHC, roles and functions of PHC in health systems, different organizational and managerial approaches to organizing and delivering health care within PHC framework, and tools for measuring how well PHC programs and services are functioning. Review and critical analysis of evidence-based on PHC effectiveness and impact and present detailed case studies of PHC programs in diverse settings around world. Letter grading.

**249. Advanced Research Topics in Health Policy and Management. (2 to 4)** Seminar, to be arranged. Limited to Public Health graduate students. Seminars may be organized in special topics. Advanced study and analysis of current topics in health policy and management. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit with topic change. S/U or letter grading.

**249Q. Editorial Board Apprenticeship (2)** (Same as Psychiatry M210.) Seminar, two hours. Designed for postdoctoral fellows and advanced PhD students. Participation in peer review process for academic journal, Health Psychology, with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U or letter grading.

**249S. Special Topics in Health Services: Introduction to Implementation Science (4)** Seminar, four hours. Preparation: good grasp of social science research methods. Designed to provide basic understanding of science of implementing innovations and evidence-based approaches in real-world practice settings. Includes exposure to terminology, conceptual frameworks, research designs and methods, and their appropriate applications across various practice settings and populations. Interactive class discussion and guest lectures by experts in implementation science. S/U or letter grading.

**251. Project Management for Health-Care Organizations (4)** Lecture, four hours. Exploration of opportunities for using project management, change management, and process improvement techniques to enhance execution of project and improvement initiatives within health-care organizations. Letter grading.

**252. Medicare Reform (4)** (Same as Public Policy M267.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing medicare program and to develop specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading.

**253. Transforming Health System in U.S.: Where Have We Been, Where Are We Going, and How Can We Get There? (4)** Seminar, four hours. Systematic examination of requirements and opportunities to transform U.S. health care system to produce substantially better results and for significantly lower expenditures. Inquiry assesses preconditions and infrastructure required to support transformation, and leading efforts underway in U.S. and globally. Students gain deeper understanding of current context, exposure to promising tools and approaches, and increased knowledge of key drivers of transformation. S/U or letter grading.

**255. Obesity, Physical Activity, and Nutrition Seminar (4)** (Same as Community Health Sciences M234.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interventions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading.

**259. Smoking, Drinking, Shooting, and Driving: Understanding Public Health Policy in U.S. (4)** (Same as Community Health Sciences M259.) Lecture, two hours; discussion, two hours. Recommended prerequisite: course 286. Overview of essential theories regarding development, implementation, and impact of public health policies in U.S. with emphasis on state and local governments. Students develop skills in public health policy research (laws, regulations, statutes, ordinances) and engage in critically analyzing evidence for different approaches currently used to address some of main causes of death and disability in U.S. including tobacco, alcohol, firearms, food and nutrition, and motor vehicle safety. Readings, case studies, exploration of public use data, group discussions, and directed individual research. Students engage in discussion and debate regarding contemporary challenges and emerging trends. S/U or letter grading.

**260. World Health (4)** Lecture, two hours. Designed for graduate students. Overview of world health, with emphasis on healthcare outside U.S. Key areas include burden of infectious diseases, health economics, and impact of healthcare policy on healthcare delivery. Letter grading.

**265. Challenges in Clinical Health Services Research (4)** Lecture, four hours. Requisites: courses 200A, 200B. Designed to prepare students for challenges involved in conducting health services research on clinical topics and populations. Topics include formulating appropriate questions, identifying sources, mechanism of conducting field studies, identifying funding sources, writing grants, and publishing findings. S/U or letter grading.

**266A. Community-Based Participatory Health Research: Methods and Applications (4)** Lecture, one hour; discussion, one hour; fieldwork, two hours. Limited to clinical scholars fellows. Mentoring of field experiences with introduction to critical issues in conducting research in community settings. Review of assignments, interventions, and evaluation designs for community settings and discussion of practical issues in partnering with communities. Letter grading.

**266B. Community-Based Participatory Health Research: Methods and Applications (4)** Lecture, one hour; discussion, one hour; fieldwork, two hours. Limited to clinical scholars fellows. Mentoring of field experiences with introduction to critical issues in conducting research in community settings. Review of assignments, interventions, and evaluation designs for community settings and discussion of practical issues in partnering with communities. Letter grading.

**269. Healthcare Policy and Finance (4)** (Same as Public Policy M269.) Seminar, three hours; outside study, nine hours. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive healthcare markets. Letter grading.

**274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations (4)** (Same as Psychology M274.) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behaviors and status of major racial/ethnic groups in U.S. Where appropriate, discussion of international issues as well. S/U or letter grading.

**280. Health Reform: Policy, Research, and Implementation Issues (4)** Seminar, three hours. Requisites: courses 200A, 200B. Limited to second-year MPH and doctoral students. Analysis of components of major federal health-care reform legislative initiative to identify important policy, research, and implementation issues. Application of principles of stakeholder analysis to understand how and why this legislation was constructed and how it passed Congress. Conducting of policy analyses of selected components through completion of written assignments. Examination of respective roles of federal and state government in implementing and administering various components. Identification of significant implementation and administrative challenges at federal and state levels and development of possible strategies for addressing those challenges. Letter grading.

**281. Policy Making amid Health, Economic, and Social Crises: Pandemics and Beyond (4)** Seminar, four hours. Preparation: one year of graduate coursework. In past two decades there have been four respiratory pandemics. While COVID-19 led to most devastating health and economic consequences, threat it presented is not unique. Climate change and environmental degradation, increasing encroachment on animal habitats are together increasing rate of emerging disease outbreaks. In nearly every case, pandemics have highlighted and been worsened by underlying health, social, and economic inequalities. Focus on what can be done to address underlying inequalities, as well as what can be done to improve response to simultaneous health, economic, and social crises. Students learn comparative policy methods, analyze area of particular interest, and study what approaches states and countries have taken in the past and impact of these approaches. S/U or letter grading.

**282. Mental Health Policy: Investing in Children's Mental Health (4)** Seminar, four hours. Interactive analysis of major policy problems and opportunities related to mental health for children and adolescent populations. Focus on which programs and policies represent the best investments in mental health for children and youth; if society is making those investments, particularly in the U.S.; and how better investments can be made. S/U or letter grading.

**284. Social Policy and Health: Case for Gender (4)** Lecture, four hours. Preparation: completion of core MPH curriculum. Masters students in other degree programs should have completed their core requirements. Doctoral students should have completed at least one year of doctoral coursework. Focus on relationships among gender inequality, restrictive gender norms, and health. Examination of evidence pulled together by World Health Organization (WHO) Commission on social determinants of health and others on how gender inequality and restrictive gender norms impact health across sexes and genders. Examination of evidence on extent of gender inequality in other social

determinants of health globally including education, work, and poverty. Focus on policies to improve health. Discussion of examples of policy and programmatic approaches to inequalities in education, work, family, and other spheres. Students have opportunity to dive deeper into area of choice. S/U or letter grading.

**285. Ethical Theory and Applications in Public Health (4)** (Same as Community Health Sciences M249L.) Lecture, two hours (MPH day program) or four hours (MPH for Health Professionals). Requisites: courses 200A, 200B. Case conferences, based on real-life experience, focus on ethical issues in health services organization and management, including ethical issues related to conflict of interest, quality of care, health insurance selection, choice of drugs, reproductive rights, AIDS, and resource allocation. Letter grading.

**286. American Political Institutions and Health Policy (4)** Lecture, three hours; discussion, one hour. To effectively participate in policy process as analyst, policymaker, advocate, or citizen, it is necessary to understand institutional and political context within which policy is made. Introduction to federal and state policy-making, with focus on health policy. Discussion of federalism and constitutionalism. Examination of stakeholders, public, interest groups, and nature of issue space for health policy. Structure and process of political institutions at federal level, Congress, President, executive agencies, courts, and administrative law. State responsibilities and federal/state relations. How analysis enters policy process with examination of roles of federal analytic agencies and private research and advocacy groups. Letter grading.

**287. Politics of Health Policy (4)** (Same as Community Health Sciences M287 and Public Policy M266.) Lecture, three hours; discussion, one hour. Examination of politics of health policy process through analysis of case studies such as environmental protection, pandemic preparedness and response, preventive health services for women, and racial and income inequality and health. Examination of framework for assessing evidence-based policy making and effects of political structure and current political divisions, including efforts such as to repeal and dismantle Affordable Care Act. Letter grading.

**288. Role and Impact of Technology on Health Services (4)** Lecture, four hours. Examination of role and impact of technology on health services in the U.S. from point of view of system itself. Exploration of various types of technologies for their policy, economic, and organizational impact. S/U or letter grading.

**289. Healthcare Disparities (4)** Seminar, three hours. Limited to graduate students. Exploration of what constitutes and explains disparity in healthcare. Emphasis on understanding history of disparities in U.S. to understand current state of disparities, and on evaluating effectiveness of ongoing strategies to eliminate them, such as increasing insurance coverage and delivery of culturally competent healthcare. Examination of sociological models that explain disparities in healthcare and evaluation and expansion on these models. Letter grading.

**290. Evolving Paradigms of Prevention: Interventions in Early Childhood (4)** (Same as Community Health Sciences M237.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading.

**400. Field Studies in Health Services (4)** Fieldwork, to be arranged. Preparation: summer internship. Required of all graduating MPH students. Continuation of summer placement in organizations for delivery, financing, and evaluation of health services. Preparation of consulting report based on organizational problem or project from summer internship. Exposure to selected professional development issues. Letter grading.

**401. Public Health Informatics (4)** Lecture, three hours. Preparation: general familiarity and understanding of basic information technologies. Recommended requisite: course 251. Introduction to field of public health informatics and examination of impact of information technology on practice of public health. Entire process, from systems conceptualization and design to project planning and development to system implementation and use. Letter grading.

**403. Healthcare Financial Accounting (4)** Lecture, four hours. Introduction to basic concepts of accounting, providing basis for understanding of language of business. Letter grading.

**411. Issues in Cancer Prevention and Control (4)** (Same as Community Health Sciences M411.) Lecture, four hours. Designed for juniors, seniors, and graduate students. Introduction to causes and characteristics of cancer epidemic, cancer control goals for nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

**415. Organizational Analysis (4)** Seminar, four hours. Introduction to important questions and perspectives relevant to understanding organizational behavior and change in healthcare and public health environments. Active paradigms in organizational theory, particularly perspectives important for understanding delivery system change. Examination of empirical research to clarify how important organizational constructs have been operationalized and to highlight methodology-related challenges of studying organizations in healthcare/public health. Letter grading.

**420. Children with Special Healthcare Needs: Systems Perspective (4)** (Same as Community Health Sciences M420 and Social Welfare M290L.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

**422. Practices of Evaluation in Health Services: Theory and Methodology (4)** (Same as Sociology M402.) Lecture, four hours. Requisites: courses 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading.

**423. Advanced Evaluation Theory and Methods for Health Services (4)** Lecture, four hours. Designed for departmental MS and PhD students. Familiarity with current theoretical concepts in evaluation to gain skills in integrating theory into program implementation and evaluation design. Development of student ability to apply various evaluation methodologies most appropriate to variety of settings both within and outside health care and public health, and consideration of advantages and disadvantages of potential design. Examination of shift in field of evaluation over past decade from principal focus on program efficacy (i.e., internal validity) to more balanced approach considering efficacy in content of feasibility, reach, cost, and sustainability (i.e., external validity) and evaluation designs that have emerged (e.g., pragmatic and adaptive trials). Letter grading.

**424. Proposal Writing for Health Services Research (4)** Seminar, four hours. Requisites: courses 225A, 225B. Designed for MS and PhD students. Introduction to conceptualizing and writing fundable research proposals. How review process—culture, structure, procedures, timetables, and outcomes—operates in different research environments. Application of grant writing principles and skills to develop research proposals following National Institutes of Health guidelines. S/U or letter grading.

**428. Child and Family Health Program Community Leadership Seminar (2)** (Same as Community Health Sciences M428.) Seminar, two hours. Designed for graduate students. Examination of characteristics of community-based organizations (CBOs) and role of leadership in decision-making process involved in major issues facing maternal and child health in Los Angeles County. Focus on specific leadership competencies that are or should be employed by organizations effective in shaping maternal and child health programs and policies (or any population-level policies and programs). Leaders from CBOs in Los Angeles meet with students, comment on their practicum experiences, and underscore community leadership concepts demonstrated by those CBOs. S/U or letter grading.

**430. Healthcare Innovation and E-Health (4)** Lecture, four hours. Introduction of new technologies in healthcare e-commerce/Internet/new media area, with emphasis on general background, review of applications, and discussion of organizational and managerial issues dealing with successful use and implementation of technologies. S/U or letter grading.

**431. Organizational Behavior and Human Resources in Healthcare Organizations (4)** Lecture, four hours. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, and system. Core human resources skills required by managers. Unique features of health services organizations stressed as applications are presented. Letter grading.

**432. Management of Healthcare Delivery Organizations (4)** Seminar, four hours. Preparation: summer internship, work experience in health services. Readings, case analyses, and term papers concerned with operations, performance management, and service quality of healthcare delivery institutions. S/U or letter grading.

**433. Health Care Strategy (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 200A, 200B, 234, M236, Management 403. Conceptual, analytical, and technical aspects of policy and strategy formulation in health services organizations. Special attention to structure and dynamics of competitive markets, corporate-level strategic planning and marketing, managerial ethics and values, organizational creativity/innovation. Letter grading.

**434. Building Advocacy Skills: Reproductive Health Focus (4)** (Same as Community Health Sciences M430.) Seminar, three hours. Recommended requisite: one prior health policy course such as Community Health Sciences 247 or Health Policy 235. Designed for School of Public Health graduate and doc-

toral students. Skills-building course to develop competency in assessing, developing, and implementing advocacy strategies for reproductive health initiatives. Introduction to legislative and community advocacy initiatives and to policymaking process, including policy analysis and development of resources necessary for legislative advocacy. Identification of advocacy goals and objectives, development of advocacy plan, coalition building, organizational capacity building, media relations, and message development for various audiences. Students learn about range of former and current reproductive health advocacy campaigns. Letter grading.

**435. Innovations and Current Trends in Ambulatory Care (4)** Lecture, three hours. Requisites: courses 200A, 200B. Examination of U.S. ambulatory care delivery system, with focus on more recent trends that are highlighted under Patient Protection and Affordable Care Act of 2010. Structure of ambulatory care service delivery system, infrastructure challenges, financing and quality of care, role of healthcare reform in shaping future of ambulatory care, concepts of chronic care/disease management, medical home, and accountable care organizations, measurement, implementation, and impact of these models. Letter grading.

**436. Healthcare Financial Management (4)** Lecture, four hours. Requisites: courses 234, 403. Designed to prepare students for financial management responsibilities in health care. Practical approach for identifying, analyzing, and making recommendations regarding fiscal issues facing health care organizations. Topics include revenue capture and cost classifications, break-even analysis under diverse payer scenarios, financial statement analytics, operational and capital budgeting, variance analysis, forecasting and pro forma, sensitivity analysis, FTE calculations, and utilization of financial dashboards. S/U or letter grading.

**437. Legal Environment of Health Services Management (2)** Lecture, two hours. Requisites: courses 200A, 200B. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, and contracts. S/U or letter grading.

**438. Issues and Problems of Local Health Administration (4)** Lecture, three hours. Preparation: one health services course. Requisites: course 100, Epidemiology 100. Overview of administrative issues currently faced by local health departments, including providing public health programs during fiscal constraint, quality improvement, interagency relationships and partnerships, and political and public interactions. Letter grading.

**439. Data Software for Public Health Professionals (4)** Lecture, two hours; activity, one hour. Development of software skills around data analytics (e.g., Excel), including use of formulas and functions, formatting and manipulating datasets, developing visualizations including charts and tables, using lookup and database functions, and implementing basic analytic methods. Letter grading.

**440A. Healthcare Information Systems and Technology (4)** Lecture, four hours. Preparation: completion of summer internship. Provides strong foundation in health information technology (HIT) for those working in healthcare, with emphasis on development of knowledge and skill to plan, manage, and implement HIT systems in healthcare delivery organizations with clinical and business partners and evolving HIT spaces. Background and evolution of HIT; how it is planned, implemented, and managed; and how it can be productively used by healthcare delivery organizations, external research organizations, regulatory organizations, providers, and patients/consumers. Fundamentals of technology, electronic medical records (EMR), electronic health records (EHR), personal health records (PHR), meaningful use, interoperability, and health information exchanges (HIE). Letter grading.

**440B. Health Information Systems: Organization and Management (4)** Lecture, two hours; laboratory, three hours. Requisite: course 440A. Health and administrative research using clinical records. Principles of planning for routine and special studies. Individual investigation in methods of obtaining and processing data to meet needs of programs in institution and agency. Introduction to principles of medical auditing; analysis of medical and health services. S/U or letter grading.

**441. Data Analytics: Identifying, Collecting, and Analyzing Data in Health Care (4)** Lecture, three hours. Requisite: course 439 or proof of waiver examination. Exploration of data sources and uses in health care, e.g., electronic medical records, social media, wireless biosensors, system and facility data. Review of hands-on techniques including data management, development of indexes and metrics, choosing and implementing analysis methods and visualizations. Discussion of role of data collection and processing within health care system. Letter grading.

**442. Integrated Health Systems (4)** Lecture, four hours. Requisites: courses 200A, 200B. Position of integrated health systems in U.S. and how they function. Introduction to important technical and organizational developments. Exploration of changes in organization and delivery of healthcare as result of growth of integrated health systems. Letter grading.

**445. Health-Care Marketing (4)** Lecture, four hours. Requisites: Public Health 200A, 200B. Introduction to concepts of health-care marketing. Exploration of principles of market-driven decision-making process. Examination of development of key elements in annual marketing process and of consumer, competitor, company analysis, market segmentation, and target markets. Letter grading.

**446. Health-Care Operations Management (4)** Lecture, four hours. Health-care managers are charged with reducing costs and improving financial outcomes in their organizations while simultaneously improving patient service and satisfaction. Focus on operations improvement and how health-care organizations can get things done. Review of integrated, systematic approach and wide variety of operations improvement tools. Designed to further prepare students for entry into managerial positions in health-care organizations by making them aware of importance of operations techniques and strategies at all career levels, and providing them with sufficient knowledge of health-care operations so they can provide departmental input to organization's leadership. S/U or letter grading.

**449A. Child Health, Programs, and Policies (4)** (Same as Community Health Sciences M436A.) Lecture, four hours. Course M449A is requisite to M449B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

**449B. Child Health, Programs, and Policies (4)** (Same as Community Health Sciences M436B.) Lecture, four hours. Requisite: course M449A. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

**450. Healthcare Financial Applications (2)** Lecture, two hours. Requisites: courses 200A, 200B. Study of healthcare financial management, including variables of cost of funds, availability of physicians to provide necessary patients, efficiency of operations, and legal constraints. Letter grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward MPH and MS minimum total course requirement. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12)** Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

**598. Master's Thesis Research. (2 to 8)** Tutorial, to be arranged. Only 4 units may be applied toward MPH and MS minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

**599. Doctoral Dissertation Research. (2 to 12)** Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

# History

## History Courses

### Lower Division

**1A. Introduction to Western Civilization: Ancient Civilizations, Prehistory to circa AD 843 (5)** Lecture, three hours; discussion, one hour. Survey of diverse cultures that shaped foundation of Western civilization to onset of 9th century AD. Investigation of first civilizations in Near East and Egypt. Analysis of worlds of Greeks and Romans. Examination of ways in which western European societies created new syntheses through selective appropriation of Greek and Roman cultures and introduction of new cultural forms. P/NP or letter grading.

**1B. Introduction to Western Civilization: Circa 843 to circa 1715 (5)** Lecture, three hours; discussion, one hour. Introduction to history of the West and its connections to rest of world from 843 to 1715. Profound social, political, cultural, and intellectual changes that affected development of modern world. Topics covered include economic, social, and cultural aspects of feudal system; relationship between Church and empire; new religious movements (including the Reformation); formation of nation-states; relationship between Western Europe and non-European and non-Christian people and traditions. P/NP or letter grading.

**1C. Introduction to Western Civilization: Circa 1715 to Present (5)** Lecture, three hours; discussion, one hour. Introduction to history of the West and its connection to rest of world after 1715, during period of sweeping political, social, and cultural tensions and transformations. Topics covered include industrialization, rise of nationalism and mass politics, revolutionary movements, urbanization, mass global migrations, European expansion and imperialism, and decolonization, leading to emergence of new nation states in Europe's former colonies. P/NP or letter grading.

**2B. Social Knowledge and Social Power (5)** Lecture, three hours; discussion, two hours. History of social knowledge and social power in the 19th and 20th centuries. Everyday ideas and practices about human nature, common sense, and community and relation of those practices to social thought, social engineering, and social science. Themes include development of social knowledges through public activities and discourses; how social knowledge differs in agricultural, mercantile, industrial, and information-based political economies; and how social science addresses these issues. P/NP or letter grading.

**2C. Religion, Occult, and Science: Mystics, Heretics, and Witches in Western Tradition, 1000 to 1600 (5)** Lecture, three hours; discussion, two hours. Specific aspects of elite and popular culture in medieval and early modern Europe. Manner in which men and women sought to explain, order, and escape terrors of their lives by embracing transcendental religious experiences and dreaming of apocalypse and witchcraft. Examination of experiences in context of genesis of the state, birth of a new science, and economic and social change. P/NP or letter grading.

**3A. History of Science: Renaissance to 1800 (5)** Lecture, three hours; discussion, two hours. Survey of beginnings of physical sciences involving transformation from Aristotelian to Newtonian cosmology, mechanization of natural world, rise of experimental science, and origin of scientific societies. P/NP or letter grading.

**3B. History of Science: Enlightenment to 1900 (5)** Lecture, three hours; discussion, two hours. In this period science became part of Enlightenment campaign for reason and of culture of an Industrial Revolution. New social science and evolutionary debates about science and religion demonstrate its rising intellectual and practical significance. P/NP or letter grading.

**3B. History of Science: Enlightenment to 1900 (5)** Lecture, three hours; discussion, two hours. In this period science became part of Enlightenment campaign for reason and of culture of an Industrial Revolution. New social science and evolutionary debates about science and religion demonstrate its rising intellectual and practical significance. P/NP or letter grading.

**3C. History of Science: 20th Century (5)** Lecture, three hours; discussion, two hours. Ranging from startling new physics of relativity and the quantum, and of nuclear weapons, to molecular reductionism in biology and campaigns for statistical objectivity, examination of involvement of science in technological, military, intellectual, and political changes of the 20th century. P/NP or letter grading.

**3D. History of Modern Medicine (5)** Lecture, three hours; discussion, two hours. Examination, through illustrated lectures and focused discussion of primary sources, of five important themes in development of modern medicine: nature of diagnosis, emergence of surgery, epidemics, conception and treatment of insanity, and use of medical technology. P/NP or letter grading.

**4. Introduction to History of Religions (5)** (Same as Religion M4.) Lecture, three hours; discussion, two hours. Comparative study of eight major religious traditions, with emphasis on their beginnings and subsequent decisive changes in their respective historical developments and interactions. Equips students with intellectual tools necessary for thinking analytically, empathetically, and comparatively about fascinating human phenomena identified as religious, such as sacred acts, places, words, and persons in their varied historical contexts. Development of student skills in critical thinking, analyzing documents, and making persuasive arguments based on historical evidence. P/NP or letter grading.

**5. Holocaust: History and Memory (5)** Lecture, three hours; discussion, two hours. Holocaust, murder of six million Jews by Germans in Nazi-occupied Europe during World War II, is one of crucial events of modern history. Examination of origins of Holocaust, perpetrators and victims, and changing efforts to come to terms with this genocide. Exploration of forces that led to Holocaust, including emergence of scientific racism, anti-Semitism, and machinery of modern state. Consideration of debates about implementation of genocide, including significance of gender and sexuality, relationship between war and genocide, meanings of resistance and culpability, and political and philosophical implications of Holocaust. Exploration of how genocide of European Jewry was intertwined with targeting of other victims of Nazi rule, including Roma, Slavs, black Germans, disabled, homosexuals, and political opponents of National Socialism. P/NP or letter grading.

**8A. Colonial Latin America (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 8AH. General introduction to Latin American history from contact period to independence (1490s to 1820s), with emphasis on convergence of Native American, European, and African cultures in Latin America; issues of ethnicity and gender; development of colonial institutions and societies; and emergence of local and national identities. Readings focus on writings of Latin American men and women from the period studied. P/NP or letter grading.

**8B. Modern Latin America (5)** Lecture, three hours; discussion, one hour. Introductory survey of social, political, and economic history of Latin America after independence, region that includes Mexico, Central and South America, and Caribbean. Formation of independent nation states and political regimes and quest for sovereignty and its challenges in shadow of U.S., approached from bottom up through lens of social history, everyday life, and popular culture. P/NP or letter grading.

**8C. Latin American Social History (5)** Lecture, three hours; discussion, two hours. Historical and contemporary perspective of role of ordinary people in Latin American society. Each lecture/film session centers on a major Latin American movie illustrative of a theme in social history. P/NP or letter grading.

**9A. Introduction to Asian Civilizations: History of India (5)** Lecture, three hours; discussion, two hours. Introductory survey for beginning students of major cultural, social, and political ideas, traditions, and institutions of Indic civilization. P/NP or letter grading.

**9C. Introduction to Asian Civilizations: History of Japan (5)** Lecture, three hours; discussion, two hours. Survey of Japanese history from earliest recorded time to the present, with emphasis on development of Japan as a cultural daughter of China. Attention to manner in which Chinese culture was Japanized and aspects of Japanese civilization which became unique. Creation of the modern state in the last century and impact of Western civilization on Japanese culture. P/NP or letter grading.

**9D. Introduction to Asian Civilizations: History of Middle East (5)** Lecture, three hours; discussion, two hours. Introduction to history of Muslim world from advent of Islam to present day. P/NP or letter grading.

**9E. Introduction to Asian Civilizations: Southeast Asian Crossroads (5)** Lecture, three hours; discussion, two hours. Overview history of a region united by its wet tropical environment and divided by great religious, cultural, and political pluralism, with focus on Vietnamese, Thai, Filipino, Khmer, Burmese, and Malayo-Indonesian patterns. P/NP or letter grading.

**10A. History of Africa to 1800 (5)** (Same as African American Studies M10A.) Lecture, three hours; discussion, one hour. Exploration of development of African societies from earliest times to late 18th century. P/NP or letter grading.

**10B. History of Africa, 1800 to Present (5)** Lecture, three hours; discussion, two hours. Not open for credit to students with credit for course 10BH or 10BW. Survey of social, economic, and political developments in Africa since 1800, with focus on slave trade, imperialism and colonialism, and nationalism



and independence. Attention to different ideologies (nationalism, socialism, apartheid), rural/urban tensions, changing role of women. P/NP or letter grading.

**10BW. Introduction to Civilizations of Africa since 1800 (5)** Lecture, three hours; discussion, two hours. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10B or 10BH. Survey of social, economic, and political developments in Africa since 1800, with focus on slave trade, imperialism and colonialism, and nationalism and independence. Attention to different ideologies (nationalism, socialism, apartheid), rural/urban tensions, changing role of women. Four papers required. Satisfies Writing II requirement. Letter grading.

**11A. History of China: To 1000 (5)** Lecture, three hours; discussion, two hours. Survey of early history of China—genesis of characteristic Chinese institutions and modes of thought from antiquity to 1000. Focus on social, political, intellectual, and economic aspects of early and middle empires. P/NP or letter grading.

**11B. History of China, circa 1000 to 2000 (5)** Lecture, three hours; discussion, one hour. Survey of later history of China—evolution of characteristic Chinese institutions and modes of thought from circa 1000 to 2000. Focus on social, political, intellectual, cultural, and economic aspects of early modern regimes and empires and rise of modern China into contemporary era. P/NP or letter grading.

**12A. Inequality: History of Mass Imprisonment (5)** Lecture, three hours; discussion, one hour. Beginning with end of U.S.-Mexican War (1848) and ending with beginning of World War II, historical analysis from days when Los Angeles first became U.S. town until 1940s when Los Angeles first became global epicenter of human confinement. Exploration of major eras and turning points in city's rise as both national and global leader in human incarceration, with review of historical foundations of mass imprisonment in Los Angeles. Introduction to current social and political landscape of imprisonment in Los Angeles. P/NP or letter grading.

**12B. Inequality: History of Neoliberalism (5)** Lecture, three hours; discussion, one hour. Exploration of origins, ideas, and consequences of neoliberalism—theory that society is best organized on principles of free trade, deregulation, and privatization. Combination of political, economic, and intellectual history to construct genealogy of neoliberal thinking by attending to 18th- and 19th-century liberalism, colonialism, imperialism, rise of social democracy and military Keynesianism, and Mount Pelerin Society's Cold War resuscitation of 19th-century liberalism. Coverage of economic crisis of 1970s, restructuring of global political economy in U.S., Europe, global south—specifically debt, structural adjustment policies, environmental destruction, and military intervention. Tracing of colonial roots of global north-south divide to reveal how neoliberal policies represent longer process of accumulation by dispossession and enclosure rather than sudden radical break from Keynesian model. P/NP or letter grading.

**12C. Inequality: Global History of Anti-Colonial Thought and Struggle (5)** Lecture, three hours; discussion, one hour. Ongoing growth and normalization of poverty, violence, and racial hatred in neo-liberal present have direct linkage to earlier moment when colonial rule of previous century brought about global structure of inequality. Examination of some of most important voices of anti-colonial and anti-imperialist struggle from comparative perspective in order to historicize current conjuncture. Readings include Aimé Césaire, Frantz Fanon, Ho Chi Minh, Toten Miyazaki, Sun Yat-Sen, Shusui Kotoku, Malcolm X, Che Guevara, and Mahatma Gandhi. Use of dialogue to reveal and reflect on commonalities and differences of thinker/activist pairs. Historical background for each thinker and active engagement in interpretation and discussion of texts. Group project as way to reflect on current conjuncture. P/NP or letter grading.

**13A. History of the U.S. and Its Colonial Origins: Colonial Origins and First Nation Building Acts (5)** Lecture, three hours; discussion, one hour. Strongly recommended for History majors planning to take more advanced courses in U.S. history. Cultural heritages, political institutions, economic developments, and social interactions which created contemporary society. P/NP or letter grading.

**13B. History of the U.S. and Its Colonial Origins: 19th Century (5)** Lecture, three hours; discussion, one hour. Strongly recommended for History majors planning to take more advanced courses in U.S. history. Cultural heritages, political institutions, economic developments, and social interactions which created contemporary society. P/NP or letter grading.

**13C. History of the U.S. and Its Colonial Origins: 20th Century (5)** Lecture, three hours; discussion, one hour. Strongly recommended for History majors planning to take more advanced courses in U.S. history. Cultural heritages, political institutions, economic developments, and social interactions which created contemporary society. P/NP or letter grading.

**14. Atlantic World, 1492 to 1830 (5)** Lecture, three hours; discussion, one hour. Strongly recommended for History majors planning to take more advanced courses in history of any region bordering on Atlantic during period from 1500 to 1900. Exploration of idea of Atlantic world and few of major historical trends that shaped its history, including migration, slavery, imperial conflicts, and revolution. Atlantic history approach avoids national frameworks that assume creation of later national division in order to understand larger, integrated region, one that gave rise to later nation states. In reconsidering how past is studied, highlights key connections, interactions, and circuits that gave rise to modern world. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. World History to AD 600 (5)** Lecture, three hours; discussion, two hours. Examination of earliest civilizations of Asia, North Africa, and Europe—Mesopotamia, Egypt, Israel, India, China, Greece, and Rome—from development of settled agricultural communities until about AD 500, with focus on rise of cities, organization of society, nature of kingship, writing and growth of bureaucracy, varieties of religious expression, and linkage between culture and society. P/NP or letter grading.

**21. World History, circa 600 to 1760 (5)** Lecture, three hours; discussion, two hours. Outline of world history from rise of Islam to start of Industrial Revolution, structured around a broad chronological narrative of salient developments. Use of thematic and comparative approaches, with certain recurring themes and institutions that modulate from culture to culture. Reading of variety of contemporary accounts to look at way people perceived cultures outside their own. P/NP or letter grading.

**22. Contemporary World History, 1760 to Present (5)** Lecture, three hours; discussion, two hours. Broad thematic survey of world history since the mid-18th century. Examination, through lecture and discussion, of global implications of imperialism, total war, nationalism, cultural change, decolonization, changes in women's rights and roles, and eclipse of world communism. Designed to introduce students to historical study, help them understand issues and dilemmas facing the world today, and prepare them for more in-depth work in history of specific regions or countries of the world. P/NP or letter grading.

**60. Achaemenid Civilization and Empire of Alexander (5)** (Same as Ancient Near East M60 and Iranian M60.) Lecture, three hours; discussion, one hour. Survey of period from circa 600 to 300 BCE, rise and fall of Achaemenid Persia, first world empire of antiquity, which was ended by Alexander the Great, whose campaigns were as transformative as they were violent. Alexander connected ancient Mediterranean and Near East as never before, ushering in new era and forever changing cultural landscape of ancient world. Focus on themes of ancient kingship and political ideology; comparative study of empires; administration and institutions; and religious and ethnic diversity in large, heterogeneous states. Emphasis on diversity critical to understanding political nuances of ancient world. Students gain broad knowledge of Achaemenid and Macedonian empires, facility with ancient primary sources, and development of analytical skills central to discipline of history that allow conceptualizing issues of diversity and othering in ancient world. P/NP or letter grading.

**60W. Achaemenid Civilization and Empire of Alexander (5)** (Same as Ancient Near East M60W and Iranian M60W.) Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course M60. Survey of period from circa 600 to 300 BCE, rise and fall of Achaemenid Persia, first world empire of antiquity, which was ended by Alexander the Great, whose campaigns were as transformative as they were violent. Alexander connected ancient Mediterranean and Near East as never before, ushering in new era and forever changing cultural landscape of ancient world. Focus on themes of ancient kingship and political ideology; comparative study of empires; administration and institutions; and religious and ethnic diversity in large, heterogeneous states. Emphasis on diversity critical to understanding political nuances of ancient world. Students gain broad knowledge of Achaemenid and Macedonian empires, facility with ancient primary sources, and development of analytical skills central to discipline of history that allow conceptualizing issues of diversity and othering in ancient world. Satisfies Writing II requirement. P/NP or letter grading.

**88. Sophomore Seminars: History (4)** Seminar, three hours. Limited to maximum of 20 lower-division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. P/NP or letter grading.

**88GE. Sophomore Seminar: Special Topics in History (5)** Seminar, four hours. Requisite: designated GE lecture course; see Schedule of Classes for specific requisite lecture and seminar topics. Designed for sophomores/juniors. Exploration of aspects of lecture topic through readings, images, and discussions. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**94. What Is History? An Introduction to Historical Thinking and Practice (4)** Lecture, two hours; discussion, two hours. What is history, who is it that we study, how do we study, and why should we study history? Introduction to basic principles of historical inquiry. Exploration of how we come to know about the past and why it matters. In-depth examination of how the historian works and analysis of sources and visual matters, including site visits. P/NP or letter grading.

**96W. Introduction to Historical Practice (5)** Seminar, three hours. Requisite: English Composition 3. Introduction to study of history, with emphasis on historical theory and research methods. Satisfies Writing II requirement. Letter grading.

**97. Historical Practices Adjunct Seminar (1)** Seminar, one hour. Corequisite: any course from History 97A through 97O. Limited to History majors. Exploration of topics covered in courses 97A through 97O in greater depth through supplemental readings, discussions, or other activities. P/NP grading.

**97A. Introduction to Historical Practice: Variable Topics in Ancient History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics course; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97B. Introduction to Historical Practice: Variable Topics in Medieval History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97C. Introduction to Historical Practice: Variable Topics in European History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97D. Introduction to Historical Practice: Variable Topics in U.S. History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97E. Introduction to Historical Practice: Variable Topics in Latin American History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97F. Introduction to Historical Practice: Variable Topics in Near Eastern History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97G. Introduction to Historical Practice: Variable Topics in East Asian History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97I. Introduction to Historical Practice: Variable Topics in History of Science/Technology (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97J. Introduction to Historical Practice: Variable Topics in African History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97K. Introduction to Historical Practice: Variable Topics in History of Religion (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97L. Introduction to Historical Practice: Variable Topics in Jewish History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97M. Introduction to Historical Practice: Variable Topics in Southeast Asian History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97N. Introduction to Historical Practice: Variable Topics in Indian History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**97O. Introduction to Historical Practice: Variable Topics in World History (4)** Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. History and Historians (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of historiography, including intellectual processes by which history is written, results of these processes, and sources and development of history. Attention also to representative historians. P/NP or letter grading.

**101. Topics in World History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes from world historical perspective. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**C101A. Variable Topics: Interdisciplinary Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Course C101A is not requisite to C101B. Designed for juniors/seniors. Topics may include gender, world history, masculinity, and economic history. May be repeated for credit with topic change. Concurrently scheduled with course C208A. P/NP or letter grading.

**C101B. Variable Topics: Interdisciplinary Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Course C101A is not requisite to C101B. Designed for juniors/seniors. Topics may include gender, world history, masculinity, and economic history. May be repeated for credit with topic change. Concurrently scheduled with course C208B. P/NP or letter grading.

**102A. Iran and Persianate World (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of model of Persianate world to bring together histories of Iran, India, and central Asia (including Afghanistan) between circa 1200 and 2000. Movement and interaction of different peoples between major cultural centers where Persian was used as common language of intellectual, religious, social, and political exchange. Weekly focus on one particular theme, with lecture material supplemented by translations of writings of princes, poets, tribesmen, travelers, and mystics who created Persian republic of letters between Shiraz, Samarkand, and Delhi, and even as far as Siberia and China. Examination of why and how various ethnic and professional groups made Persian into one of most important languages in world history. P/NP or letter grading.

**103A. History of Ancient Egypt (4)** (Same as Ancient Near East M103A.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. Chronological discussion of Prehistory, Old and Middle Kingdom. P/NP or letter grading.

**103B. History of Ancient Egypt (4)** (Same as Ancient Near East M103B.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. New Kingdom and Late period until 332 BC. P/NP or letter grading.

**104A. History of Ancient Mesopotamia and Syria (4)** (Same as Ancient Near East M104A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural development of Fertile Crescent, including Palestine, from Late Uruk to neo-Babylonian period. P/NP or letter grading.

**104B. Sumerians (4)** (Same as Ancient Near East M104B.) Lecture, three hours. Designed for juniors/seniors. Overview of Sumer and related cultures of Greater Mesopotamia in 4th and 3rd millennia BCE, with focus on rich cultural history of region and integration of archaeological, art historical, and written records. P/NP or letter grading.

**104C. Babylonians (4)** (Same as Ancient Near East M104C.) Lecture, three hours. Designed for juniors/seniors. Overview of Babylonia and cultural history of region from late 3rd millennium BCE to invasion of Cyrus in 539 BCE, with focus on history and archaeology of region, urban structure, literature, and legal practices. P/NP or letter grading.

**104D. Assyrians (4)** (Same as Ancient Near East M104D.) Lecture, three hours. Designed for juniors/seniors. Overview of Assyrian cultural history from its origins to end of Neo-Assyrian period (circa 612 BCE), with focus on rise, mechanics, and decline of Neo-Assyrian Empire, which at its peak ruled ancient Near East from Zagros to Egypt. P/NP or letter grading.

**105A. Survey of Middle East, 500 to Present: 500 to 1300 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of Islamic Empire, and its development. Rise of Dynastic Successor States and Modern Nation States. Social, intellectual, political, and economic development. P/NP or letter grading.

**105B. Survey of Middle East, 500 to Present: 1300 to 1700 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of Islamic Empire, and its development. Rise of Dynastic Successor States and Modern Nation States. Social, intellectual, political, and economic development. P/NP or letter grading.

**105C. Survey of Middle East, 500 to Present: 1700 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of Islamic Empire, and its development. Rise of Dynastic Successor States and Modern Nation States. Social, intellectual, political, and economic development. P/NP or letter grading.

**106. Premodern Islam (4)** (Same as Religion M106A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of early development of Islam with special attention to doctrine of nature of God, human responsibility, guidance, revelation and religious authority, duties of believers, ritual, law, sectarian movements, mysticism, and popular religion. P/NP or letter grading.

**107A. Armenian History: Armenia in Ancient and Medieval Times, 2nd Millennium BC to AD 11th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

**107B. Armenian History: Armenia from Cilician Kingdom through Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

**107C. Armenian History: Armenia in Modern and Contemporary Times, 19th and 20th Centuries (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Armenian question and genocide, national republic, Soviet Armenia, and dispersion. P/NP or letter grading.

**107D. Introduction to Armenian Oral History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments, interviews, and summaries and/or paper based on interviews. P/NP or letter grading.

**107E. Caucasus under Russian and Soviet Rule (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, economic, social, and cultural history of Caucasus region since 1801. Georgian, Armenian, and Azerbaijani response to Russian and Soviet rule; nationality question and Soviet national republics. P/NP or letter grading.

**108A. History of North Africa from Islamic Conquest (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, social, economic, and religious history of Islamic West (Maghrib) from Muslim conquest in 7th and 8th centuries CE until 1578. P/NP or letter grading.

**108B. History of Islamic Iberia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, social, economic, religious, artistic, and literary history of Islamic culture in Western Europe. P/NP or letter grading.

**108C. Culture Area of Maghrib (North Africa) (4)** (Same as Anthropology M166Q and Arabic M171.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

**109B. History of Israeli-Palestinian Conflict, 1881 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of origins of Arab-Israeli dispute from mid-19th century through founding of state of Israel and expulsion/flight of three quarters of million Palestinians from their homes. Exploration of social history of Palestine up to Zionist colonization, origins of Zionism and Palestinian nationalism, varieties of Zionism, Zionism and colonialism, seminal events and their consequent symbolic connotations Great Revolt and 1948 nakba (disaster), construction of national consensus in Israel, 1967 and its aftermath, intifada, and redefinition of conflict as result of Oslo. P/NP or letter grading.

**110A. Iranian Civilization: History of Achaemenid Empire (4)** (Same as Ancient Near East M110A and Iranian M110A.) Lecture, three hours; discussion, one hour (when scheduled). From end of Elam and rise of Medes to Macedonian conquest of Achaemenid Persia. Emphasis on political history, state structure, empire's religions, and Greco-Persian interactions. Further accents on Cyrus' empire and Darius' world order, age of Persian Wars, Cyrus the Younger, Achaemenid Egypt, Alexander's conquest. P/NP or letter grading.

**110B. Iranian Civilization: History of Arsacid (Parthian) Empire (4)** (Same as Ancient Near East M110B and Iranian M110B.) Lecture, three hours; discussion, one hour (when scheduled). From Hellenistic rule in Persia to Sasanian conquest. Emphasis on political history, state structure, empire's religions, interactions with Hellenistic and Roman worlds. Further accent on Parthian conquest of Iran and Mesopotamia, Seleucid demise and Arsacid hegemony in East, Arsacid-Roman wars, rise of Sasanians. P/NP or letter grading.

**110C. Iranian Civilization: History of Early Sasanian Empire—From Ardashir I to Rise of Peroz (circa 224-459 CE) (4)** (Same as Ancient Near East M110C and Iranian M110C.) Lecture, three hours; discussion, one hour (when scheduled). From fall of Arsacids to Muslim conquest of Iran. Emphasis on political and economic history, evolution of state structure, empire's religious landscape (Mazdism, Manicheism, Exilarchate, Church of Persia, Mazdakism), Persian and Roman/Byzantine interactions, Persia and East. Further accent on Persian-Roman conflicts and cooperation, Persia and Huns. P/NP or letter grading.

**111A. Topics in Middle Eastern History: Premodern (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in history of Middle East. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**111B. Topics in Middle Eastern History: Early Modern (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of Istanbul in Ottoman period (1453 to 1923); relationship between history and literary imagination and view of history as dialogue between past and present; scholarly debate on urban history of early-modern Middle East; introduction to corpus of theories (world economy paradigm) through discussion of Ottoman port cities. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**111C. Topics in Middle Eastern History: Modern (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Middle East underwent widespread social, economic, and cultural changes during 19th century that propelled society, at least portions of society and aspects of its social/cultural life, in entirely new direction. Examination of those changes to understand exactly what modernity meant for region. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**112A. History of Ancient Mediterranean World (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of ancient East from earliest times to foundation of Persian Empire. P/NP or letter grading.

**112B. History of Ancient Mediterranean World (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History and institutions of Greeks from their arrival to death of Alexander. P/NP or letter grading.

**112BD. History of Ancient Mediterranean World: Greece (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of ancient Greek world from circa 2,000 to 300 BC and its legacy in modern times. Study of Minoan civilization on Crete and Mycenaean Greeks of mainland, through Dark Age, development of Greek city-states, achievements of Athens and Sparta in Archaic and Classical periods, and death of Alexander the Great of Macedon and emergence of Hellenistic Age. Exploration of legacy of ancient Greek civilization in later Greek history, and Roman, Byzantine, Turkish, and modern periods. P/NP or letter grading.

**112C. History of Ancient Mediterranean World (4)** (Same as Classics M114A.) Lecture, five hours. Intensive on-site study of history and culture of ancient Rome from founding of city to conversion of Christianity. Part of UCLA Summer Travel Program. P/NP or letter grading.

**112D. History and Monuments of Ancient Greece: Field Studies (4)** Fieldwork, three hours. Enforced corequisite: course 112B. Examination of history, art, and monuments of ancient Greece through daily lectures and field walks to museums and archaeological sites. Part of UCLA Summer Travel Program. P/NP or letter grading.

**112E. History and Monuments of Rome: Field Studies (4)** (Same as Classics M114B.) Fieldwork, five hours. Enforced corequisite: course M112C. Examination of history, art, and monuments of ancient Rome through daily lectures and field walks to museums and archaeological sites. Field trips outside Rome to Pompeii, Hadrian's Villa, and ancient Ostia. Reception and ruins of Roman antiquity in medieval, Renaissance, and modern eras explored in their historical context. Part of UCLA Summer Travel Program. P/NP or letter grading.

**113A. History of Ancient Greece: Rise of Greek City-State (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Emphasis on archaic period and early classical age through Persian Wars. P/NP or letter grading.

**113B. History of Ancient Greece: Classical Period (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Clash between Athens and Sparta, consequent rise of Macedonia, and aftermath of Alexander the Great. P/NP or letter grading.

**113C. Ancient Historiography: Theory and Practice (4)** (Same as Classics M133.) Lecture, three hours. Study of theory, practice, and development of writing history in cultures of ancient Greece and Rome. Focus is literary, centered on questions of genre and rhetoric. Encourages appreciation for how ancient historiography relates to other ancient genres (epic, biography, oratory). Readings may draw widely from various authors, including Herodotus, Thucydides, Livy, Tacitus, and others. P/NP or letter grading.

**114A. History of Rome to Death of Caesar (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Emphasis on development of imperialism and on constitutional and social struggles of late republic. P/NP or letter grading.

**114B. History of Rome from Death of Caesar to Time of Constantine (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Early empire treated in more detail, supplemented by survey of social and economic changes in 3rd century. P/NP or letter grading.

**114C. History of Rome: Transformation of Classical World (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, cultural, and religious history of Mediterranean in late antiquity, from crisis of Roman Empire in 3rd century to barbarian and Arab invasions and beginning of medieval states and societies in 7th century. P/NP or letter grading.

**115. Topics in Ancient History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to topics in Greek and Roman history, including Roman law, ancient Greek and Roman slavery, world of Caesar Augustus, Greek democracy, and Alexander the Great. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**116A. Byzantine History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, socioeconomic, religious, and cultural continuity in millennial history of Byzantium. Reforms of Diocletian. Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks. P/NP or letter grading.

**116B. Byzantine History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, socioeconomic, religious, and cultural continuity in millennial history of Byzantium. Reforms of Diocletian. Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks. P/NP or letter grading.

**116C. Power and Imagination in Byzantium (4)** (Same as Classics M170C.) Lecture, three hours; discussion, one hour (when scheduled). Requisites: courses 116A, 116B. Designed for juniors/seniors. Study of relations of authority and intelligentsia in highly centralized Byzantine Empire. Topics include criticism of emperor, iconoclasm, intellectual freedom, attempts at reform. Letter grading.

**119A. Medieval Europe, 400 to 1000 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Basic introduction to Western Europe from Latin antiquity to age of discovery, with emphasis on medieval use of Greco-Roman antiquity, history of manuscript book, and growth of literacy. P/NP or letter grading.

**119B. Medieval Europe, 1000 to 1500 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Basic introduction to Western Europe from Latin antiquity to age of discovery, with emphasis on medieval use of Greco-Roman antiquity, history of manuscript book, and growth of literacy. P/NP or letter grading.

**119C. Medieval Civilization: Mediterranean Heartlands (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Western Mediterranean Europe, social/economic/cultural within political framework, including its relation with other cultures. P/NP or letter grading.

**119D. Topics in Medieval History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Special topics in history of Middle Ages, including religion in society, justice and law, politics of war and diplomacy, economic upheaval and renewal, and cultural representations. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**120A. East-Central Europe: Long 19th Century, 1780 to 1914 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of characteristics of peripheral 19th-century capitalism, effort to modernize and catch up, and factors and consequences of its partial failure in economy, politics, and culture. P/NP or letter grading.

**120B. East-Central Europe: Short 20th Century, 1918 to 1990 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis and interpretation of stormy history of crisis zone of Europe where wars, revolts and revolutions, and different types of extremisms led to historical detour: 70 years of departure from Western values and at last effort to turn back to them. P/NP or letter grading.

**120C. East-Central Europe in Transition, 1988 to 1993 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. State-socialism and Soviet domination collapsed in East-Central Europe in 1989. Analysis of cause and consequence of collapse, as well as road of transformation in seven (now 12) countries of region; international circumstances and domestic political, social, and economic processes. Ideology of transition versus reality of democratization, marketization, and privatization; free choice versus determinant factors. Scenarios for future. P/NP or letter grading.

**120D. Film and History: Central and Eastern Europe, 1945 to 1989 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Postwar history of central and eastern Europe (1945 to 1989), using eight Czech, Polish, and Hungarian films to explore life under state socialist modernization dictatorship. P/NP or letter grading.

**121A. History of Modern Europe: Renaissance and Reformation, 1450 to 1660 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Reorganization of power, new forms of representation, and discourses about rule and obedience in Europe from mid-15th through 16th century; popular culture; peasant society; refashioning of religion and power; localization. P/NP or letter grading.

**121B. History of Modern Europe: Baroque Culture and Absolutist Politics, 1600 to 1715 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Changing nature of state and social domination; redeployment of military violence; strategies of population discipline; absolutism and baroque culture; new forms of bureaucratic intervention; representation of family, sexuality, and body; witch persecutions. P/NP or letter grading.

**121C. History of Modern Europe: Old Regime and Revolutionary Era, 1715 to 1815 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Enlightened absolutism and reform, challenge of new political and economic ideas, crisis of Old Regime, impact of French Revolution and Napoleonic empire. P/NP or letter grading.

**121D. History of Modern Europe: Bourgeois Century, 1815 to 1914 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Restoration politics, Industrial Revolution, uprisings of 1848, unification of Germany and Italy, imperialism, rise of socialism, population growth, changes in social structure, origins of World War I. P/NP or letter grading.

**121E. History of Modern Europe: Era of Total War, 1914 to 1945 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. World War I, interwar period, and World War II. Social, cultural, political, and economic aspects, with focus on strain between model of parliamentary democracy and dynamics of mass politics (e.g., Bolshevik Revolution, Italian Fascism, national socialism, and Spanish Civil War). P/NP or letter grading.

**121F. History of Modern Europe: World War II and Its Aftermath, 1939 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. World War II, origins and persistence of Cold War, reconstruction in West, de-Stalinization, decolonization, crisis of welfare state, background to and course of 1989 revolutions, current political configuration. P/NP or letter grading.

**122A. Cultural and Intellectual History of Modern Europe, 15th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. Renaissance cultural and intellectual history of Europe. Central themes include comparative history of ideas, theory and practice of art and architecture, civic and religious humanism, religious experience, and new cultural genres of history and philological scholarship. P/NP or letter grading.

**122B. Cultural and Intellectual History of Modern Europe, 16th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

**122C. Cultural and Intellectual History of Modern Europe, 17th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

**122D. Cultural and Intellectual History of Modern Europe, 18th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

**122E. Cultural and Intellectual History of Modern Europe, 19th Century (4)** (Same as Art History M127C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

**122F. Cultural and Intellectual History of Modern Europe, 20th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

**123A. War and Diplomacy in Europe, 1650 to 1815 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of military and diplomatic history, seen in relation to social and economic developments and growth of state. P/NP or letter grading.

**123B. War and Diplomacy in Europe, 1815 to 1945 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Changing patterns of warfare and diplomatic attempts to contain Great Power rivalries; wars of national unification; imperialism; shifting balance of power and alliances; origins, course, and effects of two World Wars. P/NP or letter grading.

**123C. War and Diplomacy in Europe, Cold War (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Relations of West, Soviet Union, and world from 1945 to 1991. Origins, development, and end of power-political, military, and ideological confrontations between superpowers and their allies and clients in Europe, Asia, and Latin America. P/NP or letter grading.

**124A. History of France: France, 1500 to 1715 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social history of 16th- and 17th-century France, including growth of monarchy, wars of religion, peasant uprisings, popular culture, Catholic resurgence, Louis XIV, and achievements in arts and literature. P/NP or letter grading.

**124B. History of France: France, 1715 to 1871 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Ancien Régime and time of revolutions. Critical discourse leading to French Revolution, collapse of state, Napoleonic era, reconstruction of society through monarchies and revolutions of 19th century. P/NP or letter grading.

**124C. History of France: Making of Modern France, 1871 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. From oligarchy to democratic bureaucracy in two wars and three republics. P/NP or letter grading.

**125A. Baroque and Enlightenment Germany (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of state institutions, culture, and society in Central Europe from end of Thirty Years' War to end of Napoleonic Wars. Consideration of absolutism as political system, and baroque and Enlightenment cultures as new discourses on power and hierarchy. P/NP or letter grading.

**125B. Global German History in an Age of Empire, 1770s to 1914 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to diverse histories of German-speaking lands in central Europe from mid-18th century to First World War. Exploration of great variety of German communities and cultures across Europe and world. Identification of ways in which polycentric networks of German migration, science, travel, and trade helped to shape the age of empire. Examination of implications of Germans' persistent interconnections with the broader world (including California) for understandings of the modern era. P/NP or letter grading.

**125C. 20th-Century Germany (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Transitions that Germany has faced during this century: two world wars, shift from monarchy to republic to national socialism to divided nation, and finally reunification. Consideration of political, social, economic, and cultural spheres. P/NP or letter grading.

**125D. History of Low Countries (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of aspects of Dutch (and on occasion Belgian) history from medieval period to period after World War II, with emphasis on political and cultural history. Topics include Middle Ages, Dutch Republic in 17th and 18th centuries, Low Countries from 1830 to 1918, Netherlands and Belgium in context of Europe after 1945. P/NP or letter grading.

**126. Europe in Age of Revolution, circa 1775 to 1815 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Period from revolt of Thirteen Colonies to French Revolution of 1789, and Napoleonic regime, viewing social and political changes unleashed by these revolutionary movements in comparative and transnational perspective. P/NP or letter grading.

**127A. History of Russia, Origins to Rise of Muscovy (4)** (Same as Russian M118.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Kievian Rus' and its culture, Appanage principalities and towns; Mongol invasion; unification of Russian state by Muscovy, Autocracy and its Servitors; serfdom. P/NP or letter grading.

**127B. History of Russia: Imperial Russia from Peter the Great to Nicholas II (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Westernization of state and society; centralization at home and expansion abroad; peasant problem; beginnings of industrialization; movements of political and social protest; non-Russian peoples; political reforms and social changes; Revolution of 1905; Russia in World War I; fall of old regime. P/NP or letter grading.

**127C. History of Russia: Revolutionary Russia and Soviet Union (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Revolutions of 1917, Civil War, consolidation of Bolshevik Regime; succession crisis and ascendancy of Stalin, collectivization and industrialization; foreign policy and World War II; death of Stalin, de-Stalinization, developments since; stagnation or stability? P/NP or letter grading.

**127D. History of Russia: Culture and Society in Imperial Russia (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 127B or Russian 90A or 119. Designed for juniors/seniors. Thematic examination of culture and society in Russia during era of state-sponsored Westernization (1689 to 1917). Topics include nobility, peasantry, and village life from serfdom to postemancipation era, urban society, working-class life and thought, women, clergy, religion, popular culture, accommodation, and resistance. P/NP or letter grading.

**128A. Social History of Italy, 1350 to 1559 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Most important social, economic, political, and cultural developments in history of Italy during later Middle Ages and Renaissance. P/NP or letter grading.

**128B. History of Italy, 1559 to 1848 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Counter-Reformation and absolutism, Enlightenment reforms, revolutionary era, and first phase of Risorgimento. P/NP or letter grading.

**128C. History of Italy, 1848 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, social, diplomatic, and ideological developments. P/NP or letter grading.

**129A. Social History of Spain and Portugal: Age of Silver in Spain and Portugal, 1479 to 1789 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of popular history in Iberian Peninsula. Emphasis on peasants and urban history, gold routes, slave trade, history of women, and development of different types of collective violence. P/NP or letter grading.

**129B. Social History of Spain and Portugal: Rebellion and Revolution in Modern Spain and Portugal, 1789 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Spain's position in Europe and its potentialities for social change discussed through investigations of urban history, agrarian social structure, history of women, problems of slow industrial development, imperialism, anarchism, and labor history. P/NP or letter grading.

**130. History of European Political Thought (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to principal themes in history of European political thought from classical antiquity to close of early modern period. Study of outstanding contributions to history of social, political, and moral philosophy in texts of major thinkers such as Plato, Aristotle, Machiavelli, More, Hobbes, Locke, and Rousseau. Reconstruction of broad intellectual and ideological contexts from which their work emerged to help students make sense of works of political philosophy in their relevant historical setting and to know something about Athenian democracy and its critics, Roman republic and its empire, Renaissance, early modern European civil wars, American and French Revolutions, and Enlightenment. Focus on emergence of some crucial concepts during this period—ideas about state, self, rights, sovereignty, liberty, private property, and more—that define way we think about politics and society in modern world. P/NP or letter grading.

**131A. Marxist Theory and History (4)** Lecture, three hours; discussion, one hour (when scheduled). Course 131A is generally requisite to 131B. Designed for juniors/seniors. Introduction to Marxist philosophy and method; conception of historical stages; competing Marxist analyses of transition from feudalism to capitalist economy via reading *Capital*; theory of politics and state in relationship to historical interpretation of 19th-century European revolutions; capitalist crises. P/NP or letter grading.

**131B. Marxist Theory and History (4)** Lecture, three hours; discussion, one hour (when scheduled). Course 131A is generally requisite to 131B. Designed for juniors/seniors. Introduction to Marxist philosophy and method; conception of historical stages; competing Marxist analyses of transition from feudalism to capitalist economy via reading *Capital*; theory of politics and state in relationship to historical interpretation of 19th-century European revolutions; capitalist crises. P/NP or letter grading.

**132. Topics in European History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Integrated introduction to important aspects of European history, with emphasis on specific topic within broad framework. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**133A. History of Women in Europe, 800 to 1715 (4)** (Same as Gender Studies M133A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to 18th century. P/NP or letter grading.

**133B. History of Women in Europe, 1715 to Present (4)** (Same as Gender Studies M133B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from 18th century to present. P/NP or letter grading.

**133C. History of Prostitution (4)** (Same as Gender Studies M133C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of prostitution from ancient times to present. Topics include toleration in medieval Europe, impact of syphilis, birth of courtesan, regulation in 19th-century Europe, white slavery scare, and contemporary global sex trade. Readings include novels, primary sources, and testimony by sex workers. P/NP or letter grading.

**134B. Economic History of Europe, 1780 to 1914 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of emergence of European world economy, first Industrial Revolution, revolutionary changes in technology, demographic patterns, education, transportation, and interrelationship between Western core and European peripheries in process of industrialization. P/NP or letter grading.

**134C. Economic History of Europe, 20th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Changing European economy after World War I and II and in 1990s; impact of fourth and fifth Industrial Revolutions; Great Depressions of century during 1930s, 1970s, and 1980s; and changing modernization strategies; import-substituting industrialization in peripheries; Soviet modernization dictatorship in East Central Europe and its collapse; integration process of second half of century and rise of European Union; modernization model at end of century. P/NP or letter grading.

**135A. Europe and World: Exploration and Conquest, 1400 to 1700 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. First phase of European expansion in Americas, Africa, and Eurasia. Analysis of motives and methods of expansion, differing patterns of European settlement, including plantation economy, and development of new commercial networks, including Atlantic slave trade. P/NP or letter grading.

**135B. Europe and World: Colonialism, Slavery, and Revolution, 1700 to 1870 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Origins and gradual increase of European dominance of world trade, impact of European colonialism in New World, Africa, and Asia, influence of new revolutionary ideals that took shape in wake of Enlightenment of 18th century, and beginnings of industrialization. P/NP or letter grading.

**135C. Europe and World: Imperialism and Postcolonialism, 1870 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of major European events and trends and their impact on world in modern period. Interrelationship of European and world history, from partition of Africa to founding of India and Pakistan. Global consequences of Cold War and new place of Europe in world. P/NP or letter grading.

**136A. History of Britain: Tudor-Stuart Times, 1485 to 1715 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of British economy, society, and polity, with focus on dynamics of both stability and change. Political, socioeconomic, religious, and cultural history of Britain under Tudors and Stuarts. Topics include Reformation, transformation of economy, establishment of overseas colonies, 17th-century political upheavals and their impact on political and socioeconomic structures. P/NP or letter grading.

**136B. History of Britain: Making of Modern Britain, 1715 to 1867 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of British economy, society, and polity, with focus on dynamics of both stability and change. Social, economic, political, and cultural history of Britain from Hanoverian revolution in politics to advent of mass democracy in mid-Victorian era. Themes include social change under pressure of industrialization, emergence of first British Empire, loss of America, shifts in religious and social position. P/NP or letter grading.

**136C. History of Britain: Modern Britain since 1832 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of British economy, society, and polity, with focus on dynamics of both stability and change. P/NP or letter grading.

**137A. British Empire since 1783 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and economic development of British Empire, including evolution of colonial nationalism, development of commonwealth idea, and changes in British colonial policy. P/NP or letter grading.

**137B. British Empire since 1783 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and economic development of British Empire, including evolution of colonial nationalism, development of commonwealth idea, and changes in British colonial policy. P/NP or letter grading.

**138A. Colonial America, 1600 to 1763 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of molding of American society in English North America from 1600 to 1763. Emphasis on interaction of three converging cultures: Western European, West African, and American Indian. P/NP or letter grading.

**138B. Revolutionary America, 1760 to 1800 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Inquiry into origins and consequences of American Revolution, nature of revolutionary process, creation of constitutional national government, and development of capitalist economy. P/NP or letter grading.

**138C. U.S. History, 1800 to 1850 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Discussion of major social, political, economic, and cultural transformations of first half of 19th century and how these changes helped to drive wedge between North and South. P/NP or letter grading.

**139A. U.S., Civil War and Reconstruction (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rise of sectionalism, antislavery crusade; formation of Confederate States; war years; political and social reconstruction. P/NP or letter grading.

**139B. U.S., 1875 to 1900 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. American political, social, and institutional history in period of great change. Emphasis on altering concepts of role of government and responses to that alteration. P/NP or letter grading.

**140A. 20th-Century U.S. History, 1900 to 1928 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, intellectual, and cultural aspects of American democracy. P/NP or letter grading.

**140B. 20th-Century U.S. History, 1929 to 1960 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, intellectual, and cultural aspects of American democracy. P/NP or letter grading.

**140C. 20th-Century U.S. History since 1960 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of political, social, and diplomatic developments that have shaped U.S. since 1960. P/NP or letter grading.

**141A. American Economic History, 1790 to 1910 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Roles of economic forces, institutions, individuals, and groups in promoting or impeding effective change in American economy from 1790 to 1910. During this period technical skeleton of modern industrial structure was formed. Why and how American economy evolved into dual economy, characterized by center of firms large in size and influence and periphery of smaller firms. P/NP or letter grading.

**141B. American Economic History, 1910 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Dynamics of change in dual economy, with focus in greater detail on interrelationships between macro and micro developments in economy and on growing interdependency between U.S. and world economy from 1910 to present. P/NP or letter grading.

**142A. Intellectual History of U.S. (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Principal ideas about humanity and God, nature and society, that have been at work in American history. Sources of these ideas, their connections with one another, their relationship to American life, and their expression in great documents of American thought. P/NP or letter grading.

**142B. Intellectual History of U.S. (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Principal ideas about humanity and God, nature and society, that have been at work in American history. Sources of these ideas, their connections with one another, their relationship to American life, and their expression in great documents of American thought. P/NP or letter grading.

**142C. History of Religion in U.S. (4)** (Same as Religion M142C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of religious dimension of people's experience in U.S. Examination of number of religious traditions that have been important in this country, with emphasis on relating developments in religion to other aspects of American culture. P/NP or letter grading.

**142D. American Popular Culture (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended requisites: courses 13B, 13C. Designed for juniors/seniors. Survey of American cultural history since 1865, with emphasis on historical development of urban, consumer-oriented American mass culture that enveloped diverse groups of Americans as producers and consumers. Historical development of American popular culture according to changing set of political, economic, and social circumstances. Evolution of national and global framework for mass circulation of popular cultural expressions, as well as arrival of new technologies that enabled that development. P/NP or letter grading.

**143A. Constitutional History of U.S.: Origins and Development of Constitutionalism in U.S. (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Particular emphasis on framing of Federal Constitution in 1787 and its subsequent interpretation. Judicial review, significance of Marshall Court, and effects of slavery and Civil War on Constitution. P/NP or letter grading.

**143B. Constitutional History of U.S.: Constitutionalism since Civil War (4)**

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Particular emphasis on development of Supreme Court, due process revolution, Court and political questions, and fact of judicial supremacy within self-prescribed limits. P/NP or letter grading.

**144. America in World (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Reconsideration of U.S. exceptionalist approach to national self-understanding by rethinking crucial aspects of American history in more international context that goes well beyond foreign relations and international affairs to reconceptualize aspects of American economic, intellectual, cultural, and social history. Consideration of transnational flows of people, ideas, goods, wealth, and politics, as well as comparative studies of all these things and more. P/NP or letter grading.

**144C. Critical Issues in U.S.-Philippine Relations (4)** (Same as Asian American Studies M171D.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: courses 176A, 176B, 176C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in 20th century. P/NP or letter grading.

**145A. U.S. Urban History: U.S. Cities—Overview (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Demographic, geographic, political, economic, and social development of U.S. cities in relation to broad trends in U.S. history as well as to their own more special histories. Emphasis on mastery of facts and chronology, and awareness of major theoretical issues and fundamental concepts in urban history. P/NP or letter grading.

**145B. U.S. Urban History: Topics in U.S. Urban History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of one aspect of U.S. urban history in depth without having to attend to basic chronology or geography. Topics include crime and police, urban economics, and urban government. Students do primary research papers based on local materials in addition to written examinations. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**146A. American Working Class Movements (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of American working class from Colonial times to present, with emphasis on both organized and unorganized labor, history of Knights of Labor, AFL-CIO, and development of labor politics. P/NP or letter grading.

**146B. American Working Class Movements (4)** (Formerly numbered 146B.) (Same as Labor Studies M105.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of American working class from Colonial times to present, with emphasis on both organized and unorganized labor, history of Knights of Labor, AFL-CIO, and development of labor politics. P/NP or letter grading.

**146C. Migrant Nation: How Mobility Shapes American Society, Politics, and Culture (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Thematic and chronological survey of immigration and internal migration, cultures of racial and ethnic stratification, migrant political activism, and policies that govern migration, citizenship, and exclusion in U.S. P/NP or letter grading.

**146D. U.S. and Comparative Immigration History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Use of overlapping diaspora model that integrates North Atlantic (Europe), South Atlantic (Afro-Caribbean), Pacific (China/Japan/Hawaii), and Latin (Mexico to Brazil) worlds to provide chronological and analytic survey of American and comparative immigration from 1750 to present. Special focus on Southern California. P/NP or letter grading.

**147C. History of Women in Colonial British America and Early U.S., 1600 to 1860 (4)** (Same as Gender Studies M147B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in early 17th century to rise of women's rights movement in mid-19th century. P/NP or letter grading.

**147D. History of Women in U.S., 1860 to 1980 (4)** (Same as Gender Studies M147D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of American women from abolition of slavery and Civil War to rise and consequences of second-wave feminism. P/NP or letter grading.

**147E. History of Deaf Communities in America (4)** (Same as American Sign Language M120.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of history and culture of deaf communities in America (circa 1800 to present) by exploring major events im-



pacting deaf people, including development of sign language, deaf education, audism, politics of deafness, eugenics, deaf revolution movements, and role of hearing technology. Historical development of emergence, growth, and survival of America's deaf community and development of deaf identity over time. P/NP or letter grading.

**148. Introduction to Public/Applied History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. General survey of historical definitions of, and debates about, public and applied history, that is, history in non-academic settings across different periods and geographic regions. Survey supplemented with case studies drawn from historical research used to inform museum exhibitions, public policy, historic commemoration, digital projects, and documentary and popular media productions. Through assigned readings, analytical writing, and collaborative research, students engage with variety of approaches, tools, and media. Research on local historical topics to foster well-grounded understanding of how history is applied and interpreted in variety of places, settings, and media for variety of audiences and purposes. P/NP or letter grading.

**149A. North American Indian History, Precontact to 1830 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of Native Americans from contact to present, with emphasis on historical dimensions of culture change, Indian political processes, and continuity of Native American cultures. Focus on selected Indian peoples in each period. P/NP or letter grading.

**149B. North American Indian History, 1830 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of Native Americans from contact to present, with emphasis on historical dimensions of culture change, Indian political processes, and continuity of Native American cultures. Focus on selected Indian peoples in each period. P/NP or letter grading.

**150A. Comparative Slavery Systems (4)** (Same as African American Studies M158A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of slavery experiences in various New World slave societies, with emphasis on outlining similarities and differences among legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies. P/NP or letter grading.

**150B. Introduction to Afro-American History (4)** (Same as African American Studies M158B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieus. P/NP or letter grading.

**150C. Introduction to Afro-American History (4)** (Same as African American Studies M158C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieus. P/NP or letter grading.

**150D. Recent African American Urban History: Funk Music and Politics of Black Popular Culture (4)** (Same as African American Studies M150D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of musical genre known as funk that emerged in its popular form during late 1960s and reached popular high point, in black culture, during 1970s. Funk, fusion of gospel, blues, jazz, rhythm and blues, soul, rock, and many other musical styles, offer students unique window into recent African American history. P/NP or letter grading.

**150E. African American Nationalism in First Half of 20th Century (4)** (Same as African American Studies M158E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical examination of African American search in first half of 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

**151A. History of Chicano Peoples (4)** (Same as Chicana/o and Central American Studies M159A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of Rio through 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical forces affecting community. Social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis on social forces, class analysis, social, economic, and labor conflict, ideas, domination, and resistance. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of paper. P/NP or letter grading.

**151B. History of Chicano Peoples (4)** (Same as Chicana/o and Central American Studies M159B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent in U.S. through 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical and policy issues affecting community. Within framework of domination and resistance, discussion deals with social structure, economy, labor, culture, political organization, conflict, and ideology. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of paper. P/NP or letter grading.

**151C. Understanding Whiteness in American History and Culture (4)** (Same as Chicana/o and Central American Studies CM182.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of white identity and explore its significance to historical construction of race class in American history. Letter grading.

**151D. Chicana Historiography (4)** (Same as Chicana/o and Central American Studies M158 and Gender Studies M157.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

**151E. Latino Metropolis: Architecture and Urbanism in Americas (4)** (Same as Chicana/o and Central American Studies M187 and Urban Planning M187.) Lecture, four hours. Introduction to history of architecture and urbanism in Americas, from fabled cities of Aztec empire to barrios of 21st-century Los Angeles and Miami. Emphasis on role of cities in Latina/Latino experience and uses of architecture and city planning to forge new social identities rooted in historical experiences of conquest, immigration, nationalization, and revolution. P/NP or letter grading.

**152. Asians in American History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of politically troubling question of entry into U.S. of immigrants ineligible for citizenship and their citizen children in American history. P/NP or letter grading.

**153. American West (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of West as frontier and as region, in transit from Atlantic seaboard to Pacific, from 17th century to present. P/NP or letter grading.

**154. History of California (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Economic, social, intellectual, and political development of California from earliest times to present. P/NP or letter grading.

**155. History of Los Angeles (4)** (Same as Chicana/o and Central American Studies M183.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to present. Emphasis on diverse peoples of area, changing physical environment, various interpretations of city, and Los Angeles' place among American urban centers. P/NP or letter grading.

**156. Topics in U.S. History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes and/or major issues in U.S. history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**157A. Early Latin America (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Advanced survey of Latin American history from conquest to independence, with emphasis on society, culture, and ethnic aspects. P/NP or letter grading.

**157B. Indians of Colonial Mexico (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social and cultural history of Indians of Mexico, especially central Mexico, from time of European conquest until Mexican independence, with emphasis on internal view of Indian groups and patterns on basis of records produced by Indians themselves. P/NP or letter grading.

**159. Latin America in 19th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Intensive analysis of economic, social, and political problems of Latin American nations from their independence to around 1910. P/NP or letter grading.

**160A. Latin American Eliteloire (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Eliteloire (defined as oral or noninstitutionalized knowledge involving leaders' conceptual and perceptual life history views) in contrast to folklore (followers' traditional or popular views). Eliteloire genres include oral history, literature, and cinema. P/NP or letter grading.

**160B. Mexican Revolution since 1910 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of concept of permanent crisis to describe and explain structure of permanent revolution under one-party democracy. Analysis of unresolved colonial and 19th-century problems and crises that have influenced modern-day Mexico, if in modified form. P/NP or letter grading.

**161. Topics in Latin American History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in history of Latin America. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**162A. Modern Brazil (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Selected topics in political, economic, social, and cultural development of Brazil, with emphasis on modernization and struggle for change, 1850 to present. Discussions, films, slides, and guest speakers supplement and complement lectures. P/NP or letter grading.

**162B. Brazil and Atlantic World, 1500 to 1822 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of development of colonial society in Brazil from discovery in 1500 to independence in 1822, placing it in context of Portugal's overseas expansion in Asia, Africa, and Americas. Emphasis on Portuguese, indigenous, and African roots of modern Brazil. P/NP or letter grading.

**162C. History of Argentina (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of economic, political, social, and cultural developments that have shaped Argentina from colonial time to present. Emphasis on 19th-century development of agro-export economy and 20th-century formation of mass society. P/NP or letter grading.

**164B. Topics in African History: Africa and Slave Trade (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Social, economic, political, and cultural impact of slave trade on African society, with emphasis on Atlantic trade without neglecting those of ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and African diaspora. P/NP or letter grading.

**164D. Topics in African History: Africa and Diaspora in Global and Comparative Perspective (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Forced migration of Africans through overseas slave trade was formative event of modern world. Exploration of that experience and its lasting consequences by placing it in its global context—African, American, European, Islamic, and Asian. P/NP or letter grading.

**164E. Topics in African History: Africa, 1945 to Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. History of Africa south of Sahara from end of World War II to present. Last phases of colonial rule in Africa, African nationalism, Pan-Africanism, liberation movements, and achievement of independence. Political, social, and economic change in colonies and in independent states of Africa. Neocolonialism, experiments in national development, apartheid in South Africa, ideological conflict in contemporary Africa, and Africa in world affairs since 1957. P/NP or letter grading.

**165. Topics in African History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes and/or major issues in African history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**165SL. Service Learning and Historical Understanding in South Africa (4)** Fieldwork, six hours. Students participate in two service learning projects in South Africa to help them understand ongoing historical legacy of apartheid in South Africa, differences between urban and rural poverty, and link between rural poverty and urban overcrowding. Students work directly with families and children under guidance of local community organizers. Offered in summer only. Letter grading.

**166A. History of West Africa: West Africa, Earliest Times to 1800 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

**166B. History of West Africa: West Africa since 1800 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

**167A. History of Northeast Africa (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of Ethiopia, Sudan, and Somalia in regional context of northeast Africa from earliest times to present, with emphasis on economy and society, evolution of state, and significance of Christianity and Islam. P/NP or letter grading.

**167B. History of East Africa (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of cultural diversity of east Africa from earliest times to growth of complex societies, its place within wider Indian Ocean system, and colonial conquest to gaining of independence and postcolonial challenges. P/NP or letter grading.

**167C. History of Central Africa (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of central Africa from earliest times, with emphasis on establishment of agriculture, growth of trade, rise of states, and incorporation of region into world economy. P/NP or letter grading.

**168A. History of Southern Africa, Origins to 1870 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Attention to social and economic as well as political aspects. Origins of South African peoples and their interactions to 1870. P/NP or letter grading.

**168B. History of Southern Africa since 1870 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Attention to social and economic as well as political aspects. Interactions between inhabitants of southern Africa since 1870. P/NP or letter grading.

**169A. Thought and Society in China to 1000 (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 11A. Designed for juniors/seniors. Elite and popular expressions of Chinese cultural life examined in readings and lectures. Focus on diversities of thought in classical legacy and their evolution under impact of Buddhism to 1000. Emphasis on intersections between intellectual life and social, political, and economic conditions. P/NP or letter grading.

**169B. Thought and Society in China since 1000 (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 11B. Designed for juniors/seniors. Elite and popular expressions of Chinese cultural life from 1000 to 20th century. Emphasis on social, political, and economic conditions within which Chinese orthodox and heterodox values evolved and changed. Evaluation of iconoclasm of Chinese intellectual life in 20th century in light of earlier currents of thought. P/NP or letter grading.

**170A. Culture and Power in Late Imperial China (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: courses 11A, 11B. Designed for juniors/seniors. Analysis of relations of power and cultural expressions of dominance and resistance in late imperial China (1000 to 1700), with emphasis on interplay of economic forces, ideas, and social and political institutions. Examination of institutions of state, family, school, and city; idioms of folk religion, death, and afterlife; political, legal, and medical discourses of body, personhood, and social identity; love, sexuality, and private life. P/NP or letter grading.

**170B. Selected Topics in Chinese History from 1500 (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended prerequisite: course 11B. Designed for juniors/seniors. Selected topics that may vary from year to year. Recent offerings include law, society, and culture; society and economy; and rural China. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**170C. History of Women in China, AD 1000 to Present (4)** (Same as Gender Studies M170C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics include women and family, women in Confucian ideology, women in literati culture, feminist movement, and women and communist revolution. P/NP or letter grading.

**170D. 20th-Century China (4)** Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 11B. Designed for juniors/seniors. Political events and intellectual developments seen in context of social-economic trends; human agency, structural change, and historical conjunctures in 20th century. P/NP or letter grading.

**170E. Economic History of China (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of development of Chinese economy and social, technological, intellectual, and political dynamics that produced distinctive patterns in evolution of China's economy from antiquity to present day. P/NP or letter grading.

**171. Variable Topics in Japanese History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Important topics in Japanese history, including political change, economic development, social questions, and popular culture, as well as media and arts, explored through extensive readings. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**172A. Japan—Ancient and Medieval History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, and cultural development of Japan from prehistory to 1600. P/NP or letter grading.

**172B. Japanese History: Early Modern, 1600 to 1868 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, and cultural development of Japan from 1600 to 1868. P/NP or letter grading.

**172C. Modern Japanese History, 1850 to 1945 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Investigation of meaning of modern “Japan” for newly national (and imperial) populace, and resistance to consequent radical upheavals in daily experience, both in Japan and Asia. Exploration of meaning of “modern” and fraught interplay of imperial and anticolonial ambitions in domestic and foreign politics. World War II experience and radical and conservative effects of Allied Occupation. Foregrounding of professional practice of history and historical creation of categories, practices, and perspectives that have become second nature (i.e., linear time, nation, and modern social norms). Topics also include gender, sexuality, aesthetics, fascism, eugenics and race, hygiene, bloodsucking, monsters, anarchism, time, colonialism, feminism, art, censorship, protest, and Cold War. Socratic-style discussion in lecture. P/NP or letter grading.

**173A. Japanese Popular Culture (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics in 18th-, 19th-, and 20th-century Japanese history, including legacy of premodern satire in postmodern comic books, American culture in 1930s’ Japanese visual culture, gender in photography, and relationship of monster movies to postwar politics. P/NP or letter grading.

**173B. Women in 20th-Century Japan (4)** (Same as Gender Studies M173B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Japanese women in Japanese and world history through state documents, autobiographical voices, contemporary television, and other varying historical sources, including topics such as women and new political order (1900 to 1930), women, war, and empire (1930 to 1945), and women in consumer society (1980s to 1990s). P/NP or letter grading.

**173C. Shinto, Buddhism, and Japanese Folk Religion (4)** (Same as Religion M173C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social dimension of various Ways, great and little: Shinto’s connection with cultural nationalism, Buddhism’s medieval Reformation and Zen’s relation to warrior culture, folk religious aspects such as shamanism, ancestor worship, and millenarianism. P/NP or letter grading.

**173D. Postwar Japanese History through Film (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of postwar Japanese history through medium of film and film criticism. Much of postwar Japanese cinema can be seen as reflecting on and questioning place of Japan in world reshaped by catastrophic war and its lingering specter. Through screenings and critical discussion of select films spanning half-century following World War II, consideration of cultural, aesthetic, and sociopolitical significance of postwar as demarcated category in Japan. Reflection on ways in which filmic presentations of state of being postwar engaged with lived history, memory, and present time. P/NP or letter grading.

**174A. Early History of India (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to civilization and institutions of India. Survey of history and culture of South Asian subcontinent from earliest times to founding of Mughal Empire. P/NP or letter grading.

**174B. History of British India I (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of expansion of British rule, theories and practice of governance, constitution of India as oriental despotism, epistemological projects of state, and other modes by which British achieved conquest of knowledge. P/NP or letter grading.

**174C. Contemporary South Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political economy of imperialism and Britain’s civilizing mission. Encounter, especially in terms of race and gender, between colonized and colonizers and to questions of resistance and nationalism. P/NP or letter grading.

**174D. Indo-Islamic Interactions, 700 to 1750 (4)** (Same as Religion M174D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical introduction to Muslim communities of what eventually became nations of India, Pakistan, and Bangladesh. Topics include social, political, religious, and cultural history. P/NP or letter grading.

**174E. Indo-Islamic Interactions, 1750 to 1950 (4)** (Same as Religion M174E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interplay of factors that, from Christian mission-

aries to Islamic madrasa schools and colonial rebellions, gave shape to multifaceted Muslim reformation in context of colonial modernity. P/NP or letter grading.

**174F. Gandhi and Making of Modern India (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of life and ideas of Mahatma Gandhi, known world over as prophet of nonviolence and principal architect of Indian independence movement. Gandhi was also spiritual thinker, social reformer, critic of Western modernity, interpreter of Indian civilization, staunch supporter of Indian syncretism, voluminous writer, and forerunner, not only in India, but of many great social and ecological movements of our times. Focus on Gandhi’s idea of satyagraha, resistance to oppression through truth (satya) and nonviolence (ahimsa), and his nonviolent campaigns against colonial rule, before moving to broader assessments of his life and thought, his critiques of modernity and industrial civilization, and his relationship to Indian nationalism. Discussion of feminist, Dalit (low-caste), Marxist, and modernist critiques of his ideas, and reflections on his place in modern India and global circulation of his ideas over last six decades. P/NP or letter grading.

**174G. Indian Identity in U.S. and Diaspora (4)** (Same as Asian American Studies M172A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of overseas Indian communities; transformations of Hinduism in diaspora; emergence of new diasporic art forms such as bhangra rap and chutney music; relations between Indians and other racial and ethnic groups; Indian women as embodiment of Indian culture; diasporic identities. P/NP or letter grading.

**175A. Cultural and Political History of Contemporary South Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Problem of modernity; partition of India and emergence of Pakistan; political, social, ecological, and women’s movements; struggle for rights and conflicts of identity among Muslims, Hindus, and Sikhs; terrorism in Sri Lanka and Punjab; public culture, popular cinema, and street life. P/NP or letter grading.

**175C. Special Topics in Contemporary Indian History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Treatment of major issues in history of contemporary India. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**176A. History of Southeast Asia to 1815 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural history of peoples of Southeast Asia from earliest times to about 1815. P/NP or letter grading.

**176B. History of Southeast Asia: Southeast Asia since 1815 (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of modern Southeast Asia, with emphasis on expansion of European influence in political and economic spheres, growth of nationalism, and process of decolonization. P/NP or letter grading.

**176C. Philippine History (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, cultural, and political history of Philippine societies from Spanish conquest through independence. Emphasis on questions of identity under colonialism, understanding Revolutions of 1896 and 1898, and politics of Philippine nationalist discourse. Readings include introduction to major issues in Philippine historiography and literature. P/NP or letter grading.

**176E. Vietnam: Past and Present (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history and culture of Vietnam from about 700 BC to present, including political, social, and economic developments as well as international relations in post-1954 period. P/NP or letter grading.

**177A. National Histories of Southeast Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Variable topics with focus on history of one or more of Southeast Asia’s nation-states: Indonesia, East Timor, Thailand, Cambodia, Burma, Laos, Malaysia, Singapore, Brunei, Philippines, Vietnam. P/NP or letter grading.

**177B. Comparative Histories of Southeast Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Variable topics with focus on history of Southeast Asia from thematic or comparative perspective. Topics may include history of human rights in Southeast Asia, gender and sexuality in island Southeast Asia, and economic history of Southeast Asia. P/NP or letter grading.

**178. Introduction to History and Culture of Iranian Jews (4)** (Same as Iranian M178 and Jewish Studies M178.) Lecture, three hours. Introduction to political, intellectual, cultural, and socioeconomic status of Iranian Jews. Exploration of history of Iranian Jews from ancient period throughout history, with focus on post-Middle Ages to present time. Topics, studied from perspective

of Iranian cultural and intellectual history, include identity and status, religious tolerance versus forced conversion, Iranian Jewish emancipation, and dynamic symbiosis between Iranian Jews and other Iranians. P/NP or letter grading.

**179A. Variable Topics in History of Medicine (4)** Lecture, three hours. Designed for juniors/seniors. Topics may include global health, biomedical technologies, gender and medicine, Chinese medicine, psychiatry and mental illness, medicine and empire, epidemics and infectious disease. May be repeated for maximum of 16 units with topic/instructor change. P/NP or letter grading.

**179B. History of Medicine: Foundations of Modern Medicine (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Cultural, scientific, and social context that shaped modern medicine from Renaissance to Romantic era. Topics include establishment of anatomy, physiology, and modern clinical medicine, mapping of human body, medical approach to mental illness, rise of anatomic-clinical method at Paris School. P/NP or letter grading.

**179C. Medicine and Society in 20th-Century America (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Socio-historical look at changes in medical science, health and disease, and treatment practices in 20th century within context of development of hospitals and research institutions and of changing American society. Particular topics include antibiotics and other wonder drugs, cancer research and treatment, mental illness, patient activism, and genetic medicine. P/NP or letter grading.

**180A. Topics in History of Science (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics may include science and colonialism, science and religion, environmental history, science in Enlightenment, development of theory of evolution, science and public policy, public nature of science. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**180B. Historical Perspectives on Gender and Science (4)** (Same as Gender Studies M180B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical cases illustrating how gender enters practices and concepts of science. Topics include gendered conceptions of nature, persona of man of science, role of women in scientific revolution, scientific investigations of women and feminine. P/NP or letter grading.

**180C. Science and Technology in 20th Century (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of science and technology and their impact on society. Industrialization, global scientific community, social Darwinism, atomic bomb and nuclear proliferation, Cold War and American science, environmentalism, molecular biology and genetic engineering. P/NP or letter grading.

**181. Topics in Jewish History (4)** (Same as Jewish Studies M181.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in Jewish history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**181SL. Jewish Thought, Politics, and Ethics: From Theory to Practice (4)** (Same as Jewish Studies M181SL.) Lecture, three hours; fieldwork, two hours. Designed for juniors/seniors. History of Los Angeles, with special emphasis on pivotal roles Jews have played in shaping Los Angeles and role that Los Angeles has played in reshaping of Jewish identities, communities, and cultures. Exploration of themes related to regionalism in American Jewish history, comparative immigration and migration patterns, and frontiers and borderlands, while providing overview of historical methodologies and interpretation. Examination of ethical and methodological implications of writing history in digital age and learning how to read and analyze these new media works as primary and secondary historical texts. Opportunity to contribute to body of historical work related to Los Angeles Jewish history through required service work with community partners and development of digital public history projects. P/NP or letter grading.

**182A. Ancient Jewish History (4)** (Same as Jewish Studies M182A and Religion M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

**182B. Medieval Jewish History (4)** (Same as Jewish Studies M182B and Religion M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

**182C. Modern Jewish History (4)** (Same as Jewish Studies M182C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of early modern Jewish history beginning with enormously re-

percussive expulsion of Jews from Spain in 1492, followed by transformations in Jewish society and identity over five centuries in Europe and Middle East, and concluding with nationalism. P/NP or letter grading.

**183A. Third Reich and Jews (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of modern anti-Semitic ideologies and movements. Rise of national socialism in Germany. Development and execution of Nazi anti-Jewish policy to outbreak of World War II. P/NP or letter grading.

**183B. Third Reich and Jews (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Second World War. Implementation of Nazi plans for extermination of Jews in Nazi-dominated Europe. Life in Nazi-imposed ghettos. Forms of Jewish resistance. Fate of Jewish populations in occupied territories. P/NP or letter grading.

**184A. Jewish Civilization: Encounter with Great World Cultures (4)** (Same as Jewish Studies M184A and Religion M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

**184B. History of Anti-Semitism (4)** (Same as Jewish Studies M184B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of origins and historical development of anti-Semitism. P/NP or letter grading.

**184C. American Jewish Experience (4)** (Same as Jewish Studies M184C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Experience of Jews in America, both historical and contemporary. P/NP or letter grading.

**184D. History of Zionism and State of Israel (4)** (Same as Jewish Studies M184D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of State of Israel from 1948 to present. P/NP or letter grading.

**185A. History of Religions: Myth (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Nature and function of myth in history of religion and culture. Examples selected from nonliterate as well as from other Asian and European traditions. P/NP or letter grading.

**185B. Religions of South and Southeast Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics vary from year to year and include religion of Veda; Brahmanism; (later) Hinduism. Consult Schedule of Classes for specifics. May be taken independently for credit. P/NP or letter grading.

**185C. Religions of South and Southeast Asia (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics vary from year to year and include Buddhism in India; religions of Java and Bali; nonliterate traditions of India and Southeast Asia. Consult Schedule of Classes for specifics. May be taken independently for credit. P/NP or letter grading.

**185D. Religions of Ancient Near East (4)** (Same as Ancient Near East M185D and Religion M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

**185E. Special Topics in History of Religions (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics announced in Schedule of Classes and include ancient Germanic cults; Renaissance mysticism; mystics of low countries; goddesses; religion in secular age. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**185F. History of Early Christians (4)** (Same as Religion M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Christian movement from its origins to circa 160 CE, stressing its continuity/discontinuity with Judaism, various responses to Jesus of Nazareth, writings produced during this period, movement's encounters with its religious, social, and political world, and methods of research. P/NP or letter grading.

**185G. Religious Environment of Early Christians (4)** (Same as Religion M186B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rich variety in religious practice and thought in Mediterranean world of 1st century CE as in context of developing Christian movement. Topics include Pharisees, Qumran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, mysteries, astrology, magic, gnosticism, and emperor-worship. P/NP or letter grading.

**185I. Jesus of Nazareth in Historical Research (4)** (Same as Religion M186C.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course M185F. Designed for juniors/seniors. Stimulated by signif-

icant post-Enlightenment historical evaluations, students are led into firsthand knowledge (in translation) of various multilayered sources for reconstruction of life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts. P/NP or letter grading.

**186A. Women and Gender, Prehistory to 1792 (4)** (Same as Gender Studies M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of history of women, gender, and sexuality from prehistory to 1792. First half deals with period before written history and asks when did gender appear? How and why did patriarchy develop? Topics include evolution of women's bodies, appearance of gender, women's contribution to Neolithic revolution, significance of Goddess artifacts, creation myths, and women and sexuality in different religions. Consideration of effects of European conquest on Mesoamerican women, women's power in monarchies, gender dimensions of Atlantic slavery, and first manifestations of feminist consciousness in second half. Objects or texts created by women examined or read throughout. P/NP or letter grading.

**186B. Global Feminism, 1850 to Present (4)** (Same as Gender Studies M186B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to movements for women's rights (educational, political, economic, sexual, and reproductive) around world and over one and one half centuries. P/NP or letter grading.

**187A. Variable Topics Historiography Proseminar: Ancient History (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187B. Variable Topics Historiography Proseminar: Medieval (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187C. Variable Topics Historiography Proseminar: Europe (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187D. Variable Topics Historiography Proseminar: U.S. (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187E. Variable Topics Historiography Proseminar: Latin America (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187F. Variable Topics Historiography Proseminar: Near East (4)** Seminar, three hours. Proseminars on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187G. Variable Topics Historiography Proseminar: East Asia (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187I. Variable Topics Historiography Proseminar: Science/Technology (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187J. Variable Topics Historiography Proseminar: Africa (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**C187K. Topics in Historiography: History of Religions (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. May be concurrently scheduled with course C200P. P/NP or letter grading.

**187L. Variable Topics Historiography Proseminar: Jewish (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**187M. Variable Topics Historiography Proseminar: Southeast Asia (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. P/NP or letter grading.

**C187N. Topics in Historiography: India (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. May be concurrently scheduled with course C200K. P/NP or letter grading.

**C187O. Topics in Historiography: World History (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. May be concurrently scheduled with course C200F. P/NP or letter grading.

**C187P. Topics in Historiography: Theory of History (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. May be concurrently scheduled with course C200Q. P/NP or letter grading.

**C187R. Topics in Historiography: Japan (4)** Seminar, three hours. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated once for credit. May be concurrently scheduled with course C200M. P/NP or letter grading.

**188. Special Courses in History (2)** Lecture, two hours. Overview of various career paths for students with degrees in history. Helps students develop academic and professional skills in preparation for life after UCLA. Focus on ways in which one can apply historical concepts, research methodologies, and analytical skills to range of careers. Guest speakers discuss how they have applied their history degrees to their work outside of academia. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Capstone Seminar: History—Ancient History (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**191B. Capstone Seminar: History—Medieval (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**191C. Capstone Seminar: History—Europe (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**C191D. Topics in History: U.S. (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201H. P/NP or letter grading.

**191DC. CAPP Washington, DC, Research Seminars (8)** (Same as Communication M191DC, Political Science M191DC, Public Affairs M191DC, and Sociology M191DC.) Seminar, three hours. Limited to CAPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC—based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**191E. Capstone Seminar: History—Latin America (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**C191F. Topics in History: Near East (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201J. P/NP or letter grading.

**191G. Capstone Seminar: History—East Asia (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**191I. Capstone Seminar: History—Science/Technology (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**C191J. Topics in History: Africa (4)** (Formerly numbered 191J.) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201N. P/NP or letter grading.

**C191K. Topics in History: History of Religions (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201P. P/NP or letter grading.

**C191L. Topics in History: Jewish History (4)** (Formerly numbered 191L.) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201R. P/NP or letter grading.

**191M. Capstone Seminar: History—Southeast Asia (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**C191N. Topics in History: India (4)** (Formerly numbered 191N.) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201K. P/NP or letter grading.

**C191O. Topics in History: World (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201W. P/NP or letter grading.

**C191P. Topics in History: Theory of History (4)** (Formerly numbered 191P.) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201Q. P/NP or letter grading.

**191Q. Capstone Seminar: History—Digital History (4)** Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

**C191R. Topics in History: Japan (4)** (Formerly numbered 191R.) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Reading and discussion of selected topics, and development of culminating project. May be repeated once for credit. May be concurrently scheduled with course C201M. P/NP or letter grading.

**194DC. Quarter in Washington, DC, Research Seminar (4)** (Same as Political Science M194DC and Sociology M194DC.) Seminar, three hours. Limited to Quarter in Washington students and other students enrolled in UC Washington Center programs. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC—based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**195. Community or Corporate Internships in History (4)** Tutorial, to be arranged; fieldwork, 8 to 10 hours. Limited to juniors/seniors. Internship in applied/public history setting coordinated through Public History Initiative. Students meet on regular basis with faculty supervisor, provide periodic reports of their experience, and write final research paper. Four units may be applied toward major requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Community and Corporate Internships in History (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

**195DC. Quarter in Washington, DC, Internships (4)** (Same as Community Engagement and Social Change M195DC, Political Science M195DC, Public Affairs M195DC, and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior Quarter in Washington program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

**197. Individual Studies in History (4)** Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in History (4)** Tutorial, to be arranged. Course 198A is requisite to 198B, which is requisite to 198C. Limited to juniors/seniors. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

**198B. Honors Research in History (4)** Tutorial, to be arranged. Requisite: course 198A. Limited to juniors/seniors. Continued development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

**198C. Honors Research in History (4)** Tutorial, to be arranged. Requisite: course 198B. Limited to juniors/seniors. Completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

**199. Directed Research in History (4)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit; History majors limited to 8 units. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Advanced Historiography: Ancient Greece (4)** Seminar, three hours. May be repeated for credit.

**200B. Advanced Historiography: Ancient Rome (4)** Seminar, three hours. May be repeated for credit.

**200C. Advanced Historiography: Medieval (4)** Seminar, three hours. May be repeated for credit.

**200D. Advanced Historiography: Europe (4)** Seminar, three hours. May be repeated for credit.

**C200F. Topics in Historiography: World History (4)** Seminar, three hours. Designed for graduate students. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated for credit. May be concurrently scheduled with course C187O. S/U or letter grading.

**200H. Advanced Historiography: U.S. (4)** Seminar, three hours. May be repeated for credit.

**200I. Advanced Historiography: Latin America (4)** Seminar, three hours. May be repeated for credit.

**200J. Advanced Historiography: Near East (4)** Seminar, three hours. May be repeated for credit.

**C200K. Topics in Historiography: India (4)** Seminar, three hours. Designed for graduate students. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated for credit. May be concurrently scheduled with course C187N. S/U or letter grading.

**200L. Advanced Historiography: China (4)** Seminar, three hours. May be repeated for credit.

**C200M. Topics in Historiography: Japan (4)** Seminar, three hours. Designed for graduate students. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated for credit. May be concurrently scheduled with course C187R. S/U or letter grading.

**200N. Advanced Historiography: Africa (4)** Seminar, three hours. May be repeated for credit.

**200O. Advanced Historiography: Science/Technology (4)** Seminar, three hours. May be repeated for credit.

**C200P. Topics in Historiography: History of Religions (4)** (Formerly numbered 200P.) Seminar, three hours. Designed for graduate students. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated for credit. May be concurrently scheduled with course C187K. S/U or letter grading.

**C200Q. Topics in Historiography: Theory of History (4)** Seminar, three hours. Designed for graduate students. Proseminar on historiography involving close reading and critical discussion of secondary scholarship and primary sources on selected topics. Reading, discussion, and analytical writing culminating in one or several historiographical essays. May be repeated for credit. May be concurrently scheduled with course C187P. S/U or letter grading.

**200R. Advanced Historiography: Jewish History (4)** Seminar, three hours. May be repeated for credit.

**200S. Advanced Historiography: Armenia and Caucasus (4)** Seminar, three hours. May be repeated for credit.

**200T. Advanced Historiography: Southeast Asia (4)** Seminar, three hours. May be repeated for credit.

**200U. Advanced Historiography: Psychohistory (4)** Seminar, three hours. May be repeated for credit.

**200V. Advanced Historiography: African American (4)** (Same as African American Studies M200A.) Seminar, three hours. May be repeated for credit. S/U or letter grading.

**200W. Advanced Historiography: American Indian Peoples (4)** (Same as American Indian Studies M203.) Lecture, 90 minutes; seminar, 90 minutes. Introduction to culture-histories of North American Indians and review of Indian concepts of history. Stereotypical approach to content and methodologies related to Indian past that is interdisciplinary and multicultural in its scope. Letter grading.

**200X. Advanced Historiography: Oral History (4)** Seminar, three hours. Introduction to practice, method, and theory of oral history.

**200Y. Advanced Historiography: Application of Economics to History (4)** Discussion, three hours.

**200Z. Advanced Historiography: Chicano (4)** Discussion, three hours. Graduate survey of leading literature in Chicano history, with emphasis on new methodological and theoretical approaches in the field.

**201A. Topics in History: Ancient Greece (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201B. Topics in History: Ancient Rome (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201C. Topics in History: Medieval (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201D. Topics in History: Early Modern Europe (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201E. Topics in History: Modern Europe (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201F. Topics in History: Russia/Eastern Europe (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201G. Topics in History: Britain (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**C201H. Topics in History: U.S. (4)** Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191D. S/U or letter grading.

**201I. Topics in History: Latin America (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**C201J. Topics in History: Near East (4)** Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191F. S/U or letter grading.

**C201K. Topics in History: India (4)** (Formerly numbered 201K.) Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191N. S/U or letter grading.

**201L. Topics in History: China (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**C201M. Topics in History: Japan (4)** (Formerly numbered 201M.) Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191R. S/U or letter grading.



**C201N. Topics in History: Africa (4)** (Formerly numbered 201N.) Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191J. S/U or letter grading.

**201O. Topics in History: Science/Technology (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**C201P. Topics in History: History of Religions (4)** Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191K. S/U or letter grading.

**C201Q. Topics in History: Theory of History (4)** (Formerly numbered 201Q.) Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191P. S/U or letter grading.

**C201R. Topics in History: Jewish History (4)** (Formerly numbered 201R.) Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191L. S/U or letter grading.

**201S. Topics in History: Armenia and Caucasus (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201T. Topics in History: Southeast Asia (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201U. Topics in History: Psychohistory (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**201V. Topics in History: Digital History (4)** Seminar, three hours. Graduate course involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading.

**C201W. Topics in History: World (4)** Seminar, three hours. Designed for graduate students. Reading and discussion of selected topics. May be repeated for credit. May be concurrently scheduled with course C191O. S/U or letter grading.

**202A. Seminar: Comparative Modern Economic History (4)** Seminar, three hours. Course 202A is requisite to 202B. Designed for graduate students. Study of problems of modern economics in the 19th and 20th centuries, including such topics as industrialization, growth, demography, development, and economic change. In Progress grading (credit to be given only on completion of course 202B).

**202B. Seminar: Comparative Modern Economic History (4)** Seminar, three hours. Requisite: course 202A. Designed for graduate students. Study of problems of modern economics in the 19th and 20th centuries, including such topics as industrialization, growth, demography, development, and economic change. Letter grading.

**203A. Social Theory and Comparative History (4)** Seminar, three and one half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following program of Center for Social Theory and Comparative History. May be taken independently for credit. S/U or letter grading.

**203B. Social Theory and Comparative History (4)** Seminar, three and one half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following program of Center for Social Theory and Comparative History. May be taken independently for credit. S/U or letter grading.

**203C. Theories in Cultural History (4)** Seminar, three hours. Introduction to social, linguistic, semiotic, or other new interpretive theories and practices developed in other fields and applied to historical material. Letter grading.

**204A. Departmental Seminar: Approaches, Methods, Debates, Practices (4)** Seminar, three hours. Required of all first-year departmental graduate students. Introduction to range of important methodological approaches and theoretical debates about writing of history that are influential across fields, geographical contexts, and temporal periods to stimulate conversation and connection across fields, inviting students to think collectively and expan-

sively about study and praxis of history. Introduction to sampling of scholarship produced by department faculty members with whom students may work. S/U or letter grading.

**204B. Departmental Seminar: Many Professions of History (4)** Seminar, three hours. Professional development seminar with practicum component. Focus primarily on exploring and demonstrating ways in which skills of historians are transferable to variety of professions and exercised in diverse ways and roles. Discussion of actual and possible roles and responsibilities of historians in 21st-century society. Examination of where historians have been, where they are now, where they can be, and where they should be as highly educated, actively engaged members of society. Collaborative project required. S/U or letter grading.

**205A. History Department Professional Development Seminar (1)** Seminar, one hour. Course 205A is requisite to 205B. Limited to history doctoral students. Introduction to issues in professional development of students in History PhD program. In Progress grading (credit to be given only on completion of course 205B).

**205B. History Department Professional Development Seminar (1)** Seminar, one hour. Requisite: course 205A. Limited to history doctoral students. Introduction to issues in professional development of students in History PhD program. S/U grading.

**206A. Seminar: Near East History (4)** Seminar, three hours. Course 206A is requisite to 206B. In Progress grading (credit to be given only on completion of course 206B).

**206B. Seminar: Near East History (4)** Seminar, three hours. Requisite: course 206A. Letter grading.

**C208A. Variable Topics: Interdisciplinary Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Course C208A is not requisite to C208B. Topics may include gender, world history, masculinity, and economic history. May be repeated for credit with topic change. Concurrently scheduled with course C101A. S/U or letter grading.

**C208B. Variable Topics: Interdisciplinary Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Course C208A is not requisite to C208B. Topics may include gender, world history, masculinity, and economic history. May be repeated for credit with topic change. Concurrently scheduled with course C101B. S/U or letter grading.

**210. Topics in Ancient Iranian History (4)** (Same as Ancient Near East M208 and Iranian M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

**211A. Seminar: Armenian History (4)** Seminar, three hours. Course 211A is requisite to 211B. In Progress grading (credit to be given only on completion of course 211B).

**211B. Seminar: Armenian History (4)** Seminar, three hours. Requisite: course 211A. Letter grading.

**212. Methods in Armenian Oral History (4)** Seminar, three hours. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments, interviews, and summaries and/or paper based on interviews. S/U or letter grading.

**213A. History of Women, Men, Sexuality (4)** Seminar, three hours. Readings include historiography and theory, as well as classic and new historical studies drawn widely from U.S., European, Latin American, Middle Eastern, and Asian history to have diversity of interests and perspectives represented and discussed. S/U or letter grading.

**213B. History of Women, Men, Sexuality (4)** Seminar, three hours. Enforced requisite: course 213A. Research, analysis, drafting, and rewriting of student final papers. S/U or letter grading.

**213C. History of Women, Men, and Sexuality Historiography (4)** Seminar, three hours. Limited to graduate students. Exposure to newest branch of gender history: study of masculinity. Focus not on men per se, but on values, practices, and texts that constitute masculinity as one gender. Readings focus on broad range of chronological periods from antiquity to 20th century and geographical areas including Americas, Asia, Europe, and Middle East. S/U or letter grading.

**213D. Women's and Gender History (4)** Seminar, three hours. Limited to graduate students. Focus on history of women and gender. Content is international, with emphasis on transnational histories and approaches. S/U or letter grading.

**214. Topics in World History (4)** Seminar, three hours. Graduate seminar utilizing world-historical perspective to examine variety of broad themes in human history. Topics vary annually. Letter grading.

**215A. Seminar: Ancient History (4)** Seminar, three hours. Course 215A is requisite to 215B. In Progress grading (credit to be given only on completion of course 215B).

**215B. Seminar: Ancient History (4)** Seminar, three hours. Requisite: course 215A. Letter grading.

**216A. Seminar: Byzantine History (4)** Seminar, three hours. Course 216A is requisite to 216B. In Progress grading (credit to be given only on completion of course 216B).

**216B. Seminar: Byzantine History (4)** Seminar, three hours. Requisite: course 216A. Letter grading.

**217. Sources and Handbooks of Medieval History (4)** Seminar, three hours. Preparation: reading knowledge of German or French. Introduction to types of medieval source materials and the handbooks needed to use them.

**218. Paleography of Latin and Vernacular Manuscripts, 900 to 1500 (4)** (Same as Classics M218, English M215, and French M210.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

**221A. Seminar: Medieval History (4)** Seminar, three hours. Course 221A is requisite to 221B. In Progress grading (credit to be given only on completion of course 221B).

**221B. Seminar: Medieval History (4)** Seminar, three hours. Requisite: course 221A. Letter grading.

**225. Colloquium for Entering Graduate Students in Modern European History (4)** Seminar, three hours. Normally limited to and required of all modern European history graduate students. Introduction to topics, methods, and historiography of modern European history.

**226A. Seminar: Italian Renaissance (4)** Seminar, three hours. Course 226A is requisite to 226B. In Progress grading (credit to be given only on completion of course 226B).

**226B. Seminar: Italian Renaissance (4)** Seminar, three hours. Requisite: course 226A. Letter grading.

**227A. Seminar: Reformation (4)** Seminar, three hours. Course 227A is requisite to 227B. In Progress grading (credit to be given only on completion of course 227B).

**227B. Seminar: Reformation (4)** Seminar, three hours. Requisite: course 227A. Letter grading.

**229A. Seminar: Early Modern European History (4)** Seminar, three hours. Course 229A is requisite to 229B. In Progress grading (credit to be given only on completion of course 229B).

**229B. Seminar: Early Modern European History (4)** Seminar, three hours. Requisite: course 229A. Letter grading.

**230A. Seminar: Modern European History (4)** (Same as Art History M230B.) Seminar, three hours. Course M230A is enforced requisite to M230B. May be repeated for credit with consent of adviser. In Progress grading (credit to be given only on completion of course M230B).

**230B. Seminar: Modern European History (4)** (Same as Art History M230C.) Seminar, three hours. Enforced requisite: course M230A. May be repeated for credit with consent of adviser. Letter grading.

**231A. Seminar: Modern European Intellectual and Cultural History (4)** Seminar, three hours. Course 231A is requisite to 231B. In Progress grading (credit to be given only on completion of course 231A).

**231B. Seminar: Modern European Intellectual and Cultural History (4)** Seminar, three hours. Requisite: course 231A. Letter grading.

**232A. Seminar: French History of 19th and 20th Centuries (4)** Seminar, three hours. Course 232A is requisite to 232B. In Progress grading (credit to be given only on completion of course 232B).

**232B. Seminar: French History of 19th and 20th Centuries (4)** Seminar, three hours. Requisite: course 232A. Letter grading.

**233A. Seminar: Russian/Soviet History (4)** Seminar, three hours. Course 233A is requisite to 233B. In Progress grading (credit to be given only on completion of course 233B).

**233B. Seminar: Russian/Soviet History (4)** Seminar, three hours. Requisite: course 233A. Letter grading.

**234A. Seminar: Modern History of Spain, Portugal, and Italy (4)** Seminar, three hours. Course 234A is requisite to 234B. In Progress grading (credit to be given only on completion of course 234B).

**234B. Seminar: Modern History of Spain, Portugal, and Italy (4)** Seminar, three hours. Requisite: course 234A. Letter grading.

**235A. Economic History of Europe, 1780 to 1939 (4)** Seminar, three hours. Course 235A is requisite to 235B. Analysis of internationalization of European world economy, emergence of Western core and its relation with European peripheries. Comparative analysis on different regions, stressing main characteristics of postwar European economy. In Progress grading (credit to be given only on completion of course 235B).

**235B. Economic History of Europe, 1780 to 1939 (4)** Seminar, three hours. Requisite: course 235A. Analysis of internationalization of European world economy, emergence of Western core and its relation with European peripheries. Comparative analysis on different regions, stressing main characteristics of postwar European economy. Letter grading.

**235C. Economic History of 20th-Century Europe (4)** Seminar, three hours. Course 235C is requisite to 235D. Cyclical trend, various economic regimes, and integration process of Europe. In Progress grading (credit to be given only on completion of course 235D).

**235D. Economic History of 20th-Century Europe (4)** Seminar, three hours. Requisite: course 235C. Cyclical trend, various economic regimes, and integration process of Europe. Letter grading.

**236A. Proseminar: Political Psychology (4)** (Same as Political Science M261A and Psychology M228A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

**236B. Seminar: Psychohistory (4)** Seminar, three hours. Course 236B is requisite to 236C. Exploration of individual and group psychological processes and their uses in historical research. In Progress grading (credit to be given only on completion of course 236C).

**236C. Seminar: Psychohistory (4)** Seminar, three hours. Requisite: course 236B. Exploration of individual and group psychological processes and their uses in historical research. Letter grading.

**239A. Seminar: English History—Middle Ages (4)** Seminar, three hours. Course 239A is requisite to 239B. In Progress grading (credit to be given only on completion of course 239B).

**239B. Seminar: English History—Middle Ages (4)** Seminar, three hours. Requisite: course 239A. Letter grading.

**240A. Seminar: English History—Modern History (4)** Seminar, three hours. Course 240A is requisite to 240B. In Progress grading (credit to be given only on completion of course 240B).

**240B. Seminar: English History—Modern History (4)** Seminar, three hours. Requisite: course 240A. Letter grading.

**241A. Seminar: German History (4)** Seminar, three hours. Course 241A is requisite to 241B. Designed for graduate students. In Progress grading (credit to be given only on completion of course 241B).

**241B. Seminar: German History (4)** Seminar, three hours. Requisite: course 241A. Designed for graduate students. Letter grading.

**242. Colloquium: European History (2)** Designed for graduate students. Forum for critical discussion of work of students and invited scholars. Presentation of student dissertation prospectuses during their third or fourth year in residence. S/U grading for students presenting papers.

**244A. Seminar: British Empire History (4)** Seminar, three hours. Course 244A is requisite to 244B. In Progress grading (credit to be given only on completion of course 244B).

**244B. Seminar: British Empire History (4)** Seminar, three hours. Requisite: course 244A. Letter grading.

**245. Colloquium: U.S. History (4)** Seminar, three hours. Normally limited to and required of all entering graduate students in U.S. history. Critical introduction to historical method, with emphasis on new methodological and conceptual approaches, use of source materials, and current state of U.S. historiography.

**246A. Introduction to U.S. History: Colonial Period (4)** Seminar, three hours. Graduate survey of significant literature dealing with U.S. history from the Colonial period to the present. Each course may be taken independently for credit.

**246B. Introduction to U.S. History: 1790 to 1900 (4)** Seminar, three hours. Graduate survey of significant literature dealing with U.S. history from the Colonial period to the present. Each course may be taken independently for credit.

**246C. Introduction to U.S. History: 20th Century (4)** Seminar, three hours. Graduate survey of significant literature dealing with U.S. history from the Colonial period to the present. Each course may be taken independently for credit.

**247A. Seminar: Early American History (4)** Seminar, three hours. Course 247A is requisite to 247B. In Progress grading (credit to be given only on completion of course 247B).

**247B. Seminar: Early American History (4)** Seminar, three hours. Requisite: course 247A. Letter grading.

**248. Anthropology and History of Mediterranean (4)** (Same as Anthropology M248 and Near Eastern Languages M248.) Seminar, three hours. Introduction to historical and anthropological writings about Mediterranean. Draws on variety of classic and contemporary theories, histories, and ethnographies about Mediterranean Sea. Topics include geographical and imaginary boundaries, Mediterranean honor/shame concepts, colonial and post-colonial Mediterranean, Levantinism, thalassology, Mediterraneanism, French Mediterraneans, Jewish Mediterranean, colonial and post-colonial sea and migrants and mobilities. Focus on critical history of anthropological study of Mediterranean and scholarly literature that emphasizes southern shores of Mediterranean. Letter grading.

**249A. Seminar: Jacksonian America (4)** Seminar, three hours. Course 249A is requisite to 249B. In Progress grading (credit to be given only on completion of course 249B).

**249B. Seminar: Jacksonian America (4)** Seminar, three hours. Requisite: course 249A. Letter grading.

**250A. Seminar: U.S. History of Middle 19th Century (4)** Seminar, three hours. Course 250A is requisite to 250B. In Progress grading (credit to be given only on completion of course 250B).

**250B. Seminar: U.S. History of Middle 19th Century (4)** Seminar, three hours. Requisite: course 250A. Letter grading.

**251A. Collaborative Research Seminar: American History (4)** Seminar, three hours. Course 251A is requisite to 251B. Research seminar taught jointly by two faculty members. Common readings and development of individual research projects. In Progress grading (credit to be given only on completion of course 251B).

**251B. Collaborative Research Seminar: American History (4)** Seminar, three hours. Requisite: course 251A. Research seminar taught jointly by two faculty members. Research, writing, and critical discussion of draft papers. Letter grading.

**252A. Seminar: Recent U.S. History to 1930 (4)** Seminar, three hours. Course 252A is requisite to 252B. In Progress grading (credit to be given only on completion of course 252B).

**252B. Seminar: Recent U.S. History to 1930 (4)** Seminar, three hours. Requisite: course 252A. Letter grading.

**253A. Seminar: Recent U.S. History since 1930 (4)** Seminar, three hours. Course 253A is requisite to 253B. In Progress grading (credit to be given only on completion of course 253B).

**253B. Seminar: Recent U.S. History since 1930 (4)** Seminar, three hours. Requisite: course 253A. Letter grading.

**254A. Seminar: U.S. Social and/or Intellectual History (4)** Seminar, three hours. Course 254A is requisite to 254B. In Progress grading (credit to be given only on completion of course 254B).

**254B. Seminar: U.S. Social and/or Intellectual History (4)** Seminar, three hours. Requisite: course 254A. Letter grading.

**255A. Business Enterprise and American Culture (4)** Seminar, three hours. Course 255A is requisite to 255B. In Progress grading (credit to be given only on completion of course 255B).

**255B. Business Enterprise and American Culture (4)** Seminar, three hours. Requisite: course 255A. Letter grading.

**256A. Seminar: America in World (4)** Seminar, three hours. Course 256A is requisite to 256B. In Progress grading (credit to be given only on completion of course 256B).

**256B. Seminar: America in World (4)** Seminar, three hours. Requisite: course 256A. Letter grading.

**256C. Political Economy of Race (4)** (Same as African American Studies M200B.) Seminar, four hours. Examination of historiography of history of capitalism and history of African diaspora, especially in their overlapping concerns with organization of race and racial states in contemporary world, development of modern imperialism—and emergence of global Black resistance to both. Themes and topics considered may include capitalism and question of slavery; law, regulations, and legal pluralism in organization of markets and nations; uneven development and nature of Black sovereignty; history of regimes of gender and sexuality in social and capital reproduction; modalities of capital accumulation and production of space; racial violence and territorial expansion; emancipation and growth of empire; history of finance capital and

its discourses of debt; capitalism and history of anti-Blackness; racism, neo-liberalism, and governmentality; and emergence and content of Black radical tradition and its critiques of racial capitalism. S/U or letter grading.

**257A. Seminar: U.S. Urban History (4)** Seminar, three hours. Course 257A is requisite to 257B. In Progress grading (credit to be given only on completion of course 257B).

**257B. Seminar: U.S. Urban History (4)** Seminar, three hours. Requisite: course 257A. Letter grading.

**258A. Seminar: Working Class History (4)** Seminar, three hours. Course 258A is requisite to 258B. In Progress grading (credit to be given only on completion of course 258B).

**258B. Seminar: Working Class History (4)** Seminar, three hours. Requisite: course 258A. Letter grading.

**259A. History of Women (4)** (Same as Gender Studies M259A.) Seminar, three hours. Course M259A is requisite to M259B. History of women's social and political issues seen in U.S. and comparative context. In Progress grading (credit to be given only on completion of course M259B).

**259B. History of Women (4)** (Same as Gender Studies M259B.) Seminar, three hours. Requisite: course M259A. History of women's social and political issues seen in U.S. and comparative context. Letter grading.

**260A. Seminar: Native American History (4)** Seminar, three hours. Course 260A is requisite to 260B. In Progress grading (credit to be given only on completion of course 260B).

**260B. Seminar: Native American History (4)** Seminar, three hours. Requisite: course 260A. Letter grading.

**260C. Native American Revitalization Movements (4)** (Same as Anthropology M238.) Lecture, two hours; discussion, one hour. Examination of revitalization movements among native peoples of North America (north of Mexico). Specific revitalization includes Handsome Lake, 1870 and 1890 Ghost Dances, and Peyote Religion. Letter grading.

**261A. Seminar: Afro-American History (4)** Seminar, three hours. Course 261A is requisite to 261B. Social and political history of Afro-Americans, including emphasis on development and structure of race relations in America; racial concepts and dilemmas, black and white. In Progress grading (credit to be given only on completion of course 261B).

**261B. Seminar: Afro-American History (4)** Seminar, three hours. Requisite: course 261A. Social and political history of Afro-Americans, including emphasis on development and structure of race relations in America; racial concepts and dilemmas, black and white. Letter grading.

**262A. Seminar: Chicano History (4)** Seminar, three hours. Course 262A is requisite to 262B. In Progress grading (credit to be given only on completion of course 262B).

**262B. Seminar: Chicano History (4)** Seminar, three hours. Requisite: course 262A. Letter grading.

**263A. Seminar: History of American West (4)** Seminar, three hours. Course 263A is requisite to 263B. In Progress grading (credit to be given only on completion of course 263B).

**263B. Seminar: History of American West (4)** Seminar, three hours. Requisite: course 263A. Letter grading.

**264. History of American Education (4)** (Same as Education M201C.) Discussion, three hours. History of educational thought and of social forces impinging on American education from 1880s to present. Analysis of relation between these ideas and forces, and aims and practices of American education today. S/U or letter grading.

**265. Graduate Writing: Form, Process, and Thought (4)** (Same as East Asian Studies M265.) Seminar, three hours. Designed for East Asian Studies MA students and East Asia-focused doctoral students, but open to all graduate students. Focus on essential skill and craft of graduate-level writing. Consideration of everything from basics about process—drafts and editing—to professional-level questions of relation of form to content, and of writing for broader publics. Specific skills and techniques are connected with the fundamental theories and principles at stake in academic inquiry, and student capacities to participate fully in disciplinary and interdisciplinary work are built. May be repeated once for credit. S/U or letter grading.

**266A. Seminar: Colonial Latin American History (4)** Seminar, three hours. Course 266A is requisite to 266B. In Progress grading (credit to be given only on completion of course 266B).

**266B. Seminar: Colonial Latin American History (4)** Seminar, three hours. Requisite: course 266A. Letter grading.

**266C. Analyzing Historical Texts (4)** (Same as Indo-European Studies M238 and Linguistics M238.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other

documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

**267A. Seminar: Latin American History, 19th and 20th Centuries (4)** Seminar, three hours. Course 267A is requisite to 267B. In Progress grading (credit to be given only on completion of course 267B).

**267B. Seminar: Latin American History, 19th and 20th Centuries (4)** Seminar, three hours. Requisite: course 267A. Letter grading.

**268A. Seminar: Recent Latin American History (4)** (Same as Latin American Studies M268A.) Seminar, three hours. Course M268A is requisite to M268B. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. In Progress grading (credit to be given only on completion of course M268B).

**268B. Seminar: Recent Latin American History (4)** (Same as Latin American Studies M268B.) Seminar, three hours. Requisite: course M268A. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. Letter grading.

**275A. Colloquium: African History (4)** Seminar, three hours. Designed for all entering and continuing graduate students in African history. Source identification, research methodologies, historiographical traditions, historical interpretation, approaches to teaching, and research design. Forum for critical discussion of dissertation prospectuses and work in progress. May be taken independently for credit. S/U or letter grading.

**275B. Colloquium: African History (4)** Seminar, three hours. Designed for all entering and continuing graduate students in African history. Source identification, research methodologies, historiographical traditions, historical interpretation, approaches to teaching, and research design. Forum for critical discussion of dissertation prospectuses and work in progress. May be taken independently for credit. S/U or letter grading.

**280. China Studies: Discipline, Methods, Debates (2)** (Same as Chinese M202.) Seminar, two hours. Introduction to study of China as practiced in humanities and social sciences disciplines. S/U grading.

**281. China—Seminar: Classical Historiography and Readings in Classical Studies (4)** (Same as Chinese M201.) Discussion, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents. Letter grading.

**282A. Seminar: Chinese History (4)** Seminar, three hours. Course 282A is requisite to 282B. In Progress grading (credit to be given only on completion of course 282B).

**282B. Seminar: Chinese History (4)** Seminar, three hours. Requisite: course 282A. Letter grading.

**285A. Seminar: Japanese History (4)** Seminar, three hours. Course 285A is requisite to 285B. In Progress grading (credit to be given only on completion of course 285B).

**285B. Seminar: Japanese History (4)** Seminar, three hours. Requisite: course 285A. Letter grading.

**286. Japan in Age of Empire (4)** (Same as Anthropology M247P and Asian M292.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

**287. Central Asian Studies: Discipline, Methods, Debates (2)** (Same as Anthropology M247Q and Near Eastern Languages M287.) Seminar, two hours. Introduction to study of central Asia as practiced in humanities and social sciences disciplines. S/U grading.

**288A. Seminar: South Asia (4)** Seminar, three hours. Course 288A is requisite to 288B. In Progress grading (credit to be given only on completion of course 288B).

**288B. Seminar: South Asia (4)** Seminar, three hours. Requisite: course 288A. Letter grading.

**289A. Seminar: Southeast Asia (4)** Seminar, three hours. Course 289A is requisite to 289B. In Progress grading (credit to be given only on completion of course 289B).

**289B. Seminar: Southeast Asia (4)** Seminar, three hours. Requisite: course 289A. Letter grading.

**291A. Seminar: Jewish History (4)** Seminar, three hours. Course 291A is requisite to 291B. Studies in intellectual and social history of Jewish people from ancient times to modern period. In Progress grading (credit to be given only on completion of course 291B).

**291B. Seminar: Jewish History (4)** Seminar, three hours. Requisite: course 291A. Studies in intellectual and social history of Jewish people from ancient times to modern period. Letter grading.

**293A. Seminar: History of Religions (4)** Seminar, three hours. Course 293A is requisite to 293B. In Progress grading (credit to be given only on completion of course 293B).

**293B. Seminar: History of Religions (4)** Seminar, three hours. Requisite: course 293A. Letter grading.

**294A. Western Science, Religion, and Political Economy, 1600 to 1830 (4)** Seminar, three hours. Study of science integrated within matrix of religious belief commonplace in early modern Europe and, to a lesser extent, in American colonies. Examination of relationship of both cultural matrices to political and economic change. S/U or letter grading.

**294B. Western Science, Religion, and Political Economy, 1600 to 1830 (4)** Seminar, three hours. Study of science integrated within matrix of religious belief commonplace in early modern Europe and, to a lesser extent, in American colonies. Examination of relationship of both cultural matrices to political and economic change. S/U or letter grading.

**295. Theories of Scientific Change (4)** Seminar, three hours. Historical and philosophical perspectives on science, focusing on rationality of scientific change and logic and psychology of scientific discovery. Readings and seminar-style discussions of such authors as Popper, Kuhn, Toulmin, Lakatos, Holton, Buchdahl, Feyerabend, and others.

**297A. Seminar: History of Science (4)** Seminar, three hours. Course 297A is requisite to 297B. In Progress grading (credit to be given only on completion of course 297B).

**297B. Seminar: History of Science (4)** Seminar, three hours. Requisite: course 297A. Letter grading.

**299. Interdisciplinary American Studies (6)** (Same as English M299.) Discussion, four hours. Readings, discussion, and papers on common theme, team-taught by faculty members from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors. S/U or letter grading.

**490. Writing Workshop for Graduate Students (4)** Tutorial, three hours. Writing workshop on students' papers-in-progress. Analysis and group discussion of rhetorical and stylistic principles, illustrated in students' own and in professional historians' work, help students improve their own writing. May be repeated once. S/U grading.

**495. Teaching History (4)** Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Lectures, readings, discussions, and practice teaching sessions within the structure of a seminar. Students receive unit credit toward full-time equivalence but not toward the nine-course requirement for MA degree. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Studies. (1 to 8)** Limited to graduate students. Individual directed reading arranged with professor. MA candidates may take this course only once. Number of times PhD candidates may take this course is subject to consent of graduate studies committee. S/U or letter grading.

**597. Directed Studies for Graduate Examinations. (1 to 8)** Preparation for comprehensive examination or PhD qualifying examinations. S/U grading.

**599. PhD Research and Writing. (1 to 8)** Preparation: advancement to PhD candidacy. S/U grading.

# Honors Collegium

## Honors Collegium Courses

### Lower Division

**1. Plague Culture (5)** Seminar, three hours. Study of episodes and metaphors of plague in Western culture from ancients into age of AIDS. Topics include scripture, ancient tragedy, Black Death, realist novel, high aesthetic metaphors of plague, Nazi propaganda, existential and absurdist thought, postwar cinema, contemporary American theater, and modern science and medicine. P/NP or letter grading.

**2. Comparative Genocide (4)** Lecture, four hours; discussion, one hour. Social comparative study of genocide, combining theoretical concepts with case studies (such as Armenia, the Holocaust, American Indians, Uganda under Amin and Obote, etc.). P/NP or letter grading.

**3. Personal Brain Management (5)** Seminar, four hours. Designed for College Honors students. Available psychotherapies, educational media, and drugs can alter our way of thinking. New wave of information technologies and biotechnologies is changing existing landscape. Survey of available tools that claim neuroplastic brain-changing effects, consideration of future developments, and engagement of students in discussion on ethical and philosophical implications of these developments. P/NP or letter grading.

**4. Welcome to Dark Side: Human Pathology in World Literature (5)** Seminar, three hours. Designed for College Honors students. Exploration of various aspects of pathological human behavior and how they are portrayed in classic literary works. Spans disciplines of comparative literature (French, German, American Gothic, modern, English), medicine/psychiatry, and history. Major themes include fear and oppression; murder and infanticide; despair and suicide; barbarism and repression; hatred and revenge; incest and shame; jealousy and paranoia; madness and psychosis; sociopathy and evil. Elucidation of themes through texts, and discussion of each text in its historical and social context. Examination of pathological behaviors in context of their medical and psychiatric framework when they correspond to clinical diagnostic entity. Texts used as springboard to elaborate on recurrent themes in history of human civilization. P/NP or letter grading.

**5. Representing Cleopatra: History, Drama, and Film (5)** Seminar, three hours. Examination of legendary queen of Egypt as seen by her contemporaries and study of origins of myths about her and ways in which subsequent cultures and eras have imagined her in literary, visual, and cinematic representations. P/NP or letter grading.

**6. Energy Issues: Before and Now (5)** Seminar, three hours. Review of physics and chemistry of concepts of energy, history over ages of turning of discoveries into products in this area, including use of fossil fuel, and discussion of current energy issues, including alternative energies. P/NP or letter grading.

**7. Saint and Heretic: Joan of Arc and Gilles de Rais, History and Myth (5)** Seminar, three hours. Examination of both history of Joan of Arc and Gilles de Rais and of way in which, over time, their histories became legends, driven by various agendas including national identity, beatification, and gender politics. P/NP or letter grading.

**8. Life, Death, and Everything in Between (5)** Seminar, three hours. Designed for College Honors students. Literature course with classic texts used to explore various aspects of human condition as they relate to health and illness. Broad themes including creation, death, deformity, madness, contagion, infirmity, and alienation to be drawn from texts spanning Shakespeare to Plath. Texts selected to illuminate one central aspect of human experience to be examined in its historical context as well as in context of contemporary practice of medicine. Exploration of social, philosophical, and ethical issues pertaining to each theme and timely and controversial aspects of modern healthcare. P/NP or letter grading.

**9. Visual Communication and Scientific Principles (5)** Seminar, four hours. Opportunity for collaboration between those in science-related disciplines and those in art/humanities-related disciplines. New ways in which science can be visually communicated, using tools, techniques, and media that are typically outside science education. Science students learn innovative ways of presenting scientific data and design and design, media, and art students learn how to apply their skills to topics they might not usually address. P/NP or letter grading.

**10. Language and Gender: Introduction to Gender Differences and Stereotypes (5)** Seminar, four hours; discussion, one hour. Designed for College Honors students. Prior knowledge of any foreign language not required. Introduction to language from sociological perspective of gender. Use of research

and examples primarily in English, Japanese, and Russian to explore nature of and stereotypes about male and female genderlects and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, and language acquisition and linguistic change. P/NP or letter grading.

**11W. Postmodern Literature and Culture (5)** Seminar, three hours. Enforced requisite: English Composition 3. Exploration of literature (and some film, music, and fine art) that emerged after World War II in postmodern era. Postmodern literature and other postmodern cultural forms challenge master narratives or belief systems, fostering skepticism toward totalizing truth claims while encouraging us to embrace diverse perspectives and heterogeneous models of identity. Satisfies Writing II requirement. Letter grading.

**12. Sacred Form: Literature and Poetry in India from Bronze Age to Premodern Times (4)** Seminar, three hours. Exploration of cultural and literary development in India from early religious poetry (prior to 1000 BC) to broad range of literary styles and diverse religious and philosophical movements through classical, medieval, and premodern period. P/NP or letter grading.

**13. Inquiry in Numbers (5)** Seminar, four hours. Preparation: high school algebra. Designed for College Honors students. Teaches nonmathematicians to love mathematics and to see mathematics as mathematicians do, not as means to end, but as beautiful and artful in its own right, including elementary number theory and study of whole numbers. Development of rich and elegant theory of prime numbers, factorization, and modular arithmetic. P/NP or letter grading.

**14. Interaction of Science and Society (5)** Seminar, three hours. Examination of interaction of science and society and effects of this interaction on history, development of societies, evolution of revolutionary ideas as modeled in Galileo, Darwin, and others, and selected contemporary issues such as genetic engineering and war against infectious diseases. P/NP or letter grading.

**15. Symmetry (5)** Seminar, four hours. Symmetry is one of fundamental intellectual frameworks of civilization, one that permeates sciences, arts, and other endeavors. Symmetry as it appears in mathematics, physics, and biology. Connections to and discussion of visual arts and music. Guest speakers from art community to complement scientific point of view. P/NP or letter grading.

**16. Science of Singing Voice (5)** Seminar, three hours. Study of methods, including computer laboratory work, of quantifying aspects of voice production. Study of students' own vocal productions as well as recorded samples of famous singers. P/NP or letter grading.

**17. Art, Entertainment, and Social Change (5)** Seminar, three hours. Designed for College Honors students. Integrative examination of evolving impact of arts and entertainment industry on such various aspects of social change as environmental movements, politics and elections, economy, local politics, and community. P/NP or letter grading.

**18. Trial of Socrates (5)** Seminar, three hours. Examination of life and times of Socrates and trial that led to his execution, including in-class staging. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to History and Philosophy of Science (5)** Lecture, three hours; discussion, one hour. Exploration of difference between science and other systems of knowledge; study of history and philosophy of science and examination of its reliability as objective knowledge. P/NP or letter grading.

**21W. Rise and Fall of Modernism (6)** Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Study of early and middle 20th-century's attempt to construct significance in a general climate of disillusionment by way of literature, literary criticism, and other intellectual movements. Satisfies Writing II requirement. Letter grading.

**22. Comparative Odysseys (5)** Seminar, three hours. Designed for College Honors students. Greek and Chinese classics have in common two modes of heroism: one glorifying prowess and another celebrating mental cunning. Both modes are associated principally with men motivated by piety and honor. Interrogation of these traditional constructions of heroic, particularly conflation of courage and violence. Readings include *Writer as Migrant* by Jin Ha, *Odyssey* by Homer, *Journey to West* by Anthony Yu, *Tripmaster Monkey* by Maxine Kingston, and *Ignorance* by Milan Kundera. P/NP or letter grading.

**23. Political Dissidence Today and in Ancient Greece: Trial and Death of Socrates in Its Classical and Legal Context (5)** Seminar, three hours. Study of trial and death of Socrates by examining its relevance today to legal treatment of dissent and civil disobedience in the U.S. and to variety of contemporary the-

ories and strategies of dissent. Introduction to Greek legal system, values that animated that system, and new ways to think about roles of law. P/NP or letter grading.

**24. We Could Be Heroes: Race, Gender, and the Contemporary Hero Narrative (5)** Seminar, four hours. Ways in which hero narratives represent and work through issues of racial and gender identity. Interdisciplinary consideration of hero narratives in film alongside various literary and media arts genres including graphic novel, blaxploitation films, hip-hop concept music, animated television series, and novel. Critical reading and analysis of these texts to question often-fraught racial and gender politics embedded in these cultural productions as way to access role that racial and gender dynamics have on world at large. P/NP or letter grading.

**25. Politics and Passion: Judgment, Justice, and Emotions (5)** Seminar, four hours. How to combine judgment and emotions without them standing in way of justice, including our ability to listen and respond to pain of others. What should govern our political lives? Should it be our reason or our emotions? Or is there some way to combine the two? Exploration of these questions through debates on place of emotions in politics, from ancient to contemporary thinkers within philosophical framework. P/NP or letter grading.

**26. Representing Medicine: Art, Literature, and Film (5)** Seminar, four hours. Limited to Freshman Summer Program students. Exploration of interdisciplinary dimensions of medical representation, with emphasis on cross-cultural 20th-century portrayals of profession, including representations of doctor/patient relations, healthcare sites and circumstances, aging, alternative treatments, and mental health. Offered in summer only. P/NP or letter grading.

**27. Varied Mathematics (5)** Seminar, four hours. Informal approach to mathematics and engineering topics. Ideas through stories from historical and anthropological sources. Simplification of topics that cause difficulties in traditional mathematics. Examples emphasize practical solutions. In place of terms used in mathematics, relevant views from popular culture, including gambling, playing card games, and student contributions. Sources include computer, control, space, and other contemporary scientific issues, and reckoning cases from East Asia, South America, and Polynesia. P/NP or letter grading.

**28. Material Culture and the Museum: Introduction to Collections-Based Research (5)** Seminar, three hours. Examination of relationship between people, objects, and ideas. Insight into way that human beings have historically and contemporaneously created and conceived of things and their use and importance in daily life and in performance of cultural identity. Consideration of questions including how past and present intersect, how people have made sense of world over time and space, and how objects, heritage, collectors, and museums converge, diverge, and intersect. P/NP or letter grading.

**29. Imagining Human Rights (5)** Seminar, four hours. Introduction to debate on international human rights. History of natural rights and examination of rise of human rights regimes during 20th century. Drawing upon art, journalism, philosophy, psychology, political science, law, history, literature, and film to investigate how this shift from natural rights to human rights involves reimagination of humanity and the human being in modern society. Students engage in comparative and interdisciplinary discussions exploring how and why idea of human rights demands critical imagination. P/NP or letter grading.

**30. Vietnam War and American Culture (4)** Seminar, three hours. Cultural, social, and political implications of the Vietnam War on American society through examination of photography, journalism, personal narrative, political commentary, drama, and fiction. P/NP or letter grading.

**31. Poets and Prophets: Back to Future with Ray Bradbury and Rod Serling (5)** Seminar, three hours. Exploration of various aspects of human condition and how they are portrayed through genre of science fiction. Examination of authors as both poets reflecting on social issues of their time, as well as prophets of future dystopia of human making. Reading texts of Ray Bradbury and viewing original screen episodes of Rod Serling's *The Twilight Zone* to see that these artists forecast some of pressing issues facing humanity today: climate change and threat of ecological and planetary devastation; impact of artificial intelligence on human relationships; racism, exploitation and marginalization of peoples; censorship; social alienation and loneliness; theory and science of time travel; space exploration and colonization as means for human survival; medical technology in service of beautification, eradication of disease, and immortality. Appreciation that using their keen insight into nature of human behavior, artists' works are as much cautionary tale as fantasy. Letter grading.

**35. Scientific Method: Critical Inquiry into Question of Extraterrestrial Life (4)** Lecture, three hours; discussion, one hour. Course does not presume to answer question of whether or not there is intelligent life in the universe but rather uses this question as a pedagogic tool to introduce central ideas, techniques, and limitations of the scientific method—what questions would need

to be asked, what scientific knowledge would be needed, and what obstacles would have to be overcome just to address this question. P/NP or letter grading.

**36. Global Geographies and Idea of Home (5)** Seminar, three hours. Designed for College Honors students. Home is potent symbolic notion across eras and cultures, locale from which we depart and to which we may return. Broader notions of home, as homeland, incessantly form basis of conflicts between people and nations. Investigation of what home is through challenging works of theory surrounding notions of space, place, longing, belonging, exile, and return, and through lighter vibrant works of literature, film, and performance. P/NP or letter grading.

**37W. Sampling and Remix: Aesthetics and Politics of Cultural Appropriation (5)** Seminar, three hours; laboratory, two hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Limited to College Honors students. Contemporary media literacy has spurred production of amateur remixes of songs, films, images, and other media texts. But this is only one moment within far-reaching genealogy of cultural appropriation. Use of remix as lens through which to explore aesthetics and politics of historical and contemporary forms of cultural appropriation, including remixes of political speech, viral videos, and comedy mashups. Examination of fine line between honorific cultural allusion and allegations of theft. Satisfies Writing II requirement. P/NP or letter grading.

**38. Film and History/Film as History (5)** Seminar, four hours. Designed for College Honors students. How do films reflect on, and even constitute, historical events? Examination of relationship between film and history and some ways in which film has functioned as history. Tracing questions of film and history from silent era to postfilm digital present, exposure to major issues in scholarly body of work in film and media studies while also learning about ways that films can engage with history. P/NP or letter grading.

**39. Philosophy Ramble (5)** Seminar, three hours. Designed for College Honors students. Grounded in Aristotelian-style philosophy found in Martha Nussbaum's *Quality of Life* and P.M.S. Hacker's *Intellectual Powers*. Prompted by wide range of philosophical readings and employing Socratic method of asking questions, examination of place in our lives—especially our civic lives—of attention, memory, will, science, prudence, and assessment/creation of self. Like Aristotle's peripatetic version of Plato's Academy, class takes regular walks together, using UCLA and West Los Angeles as Lyceum, engaging in intellectual dialog in historical tradition of exercising both body and mind. P/NP or letter grading.

**40W. Transformations of Cultural Stories across Disciplines and Texts (5)** Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Tracing of writing and rewriting of traditional story types, specifically the adventure story as represented by Defoe's *Robinson Crusoe* and its remanifestations in Coetzee's *Foe* and the fairy tale as represented by *Cinderella* and its various cross-cultural remanifestations. Satisfies Writing II requirement. Letter grading.

**41. Understanding Ecology: Finding Interdisciplinary Solutions to Environmental Problems (5)** Seminar, four hours. Designed for College Honors students. Exploration of ecological basis of planet's most important environmental issues, including global climate change, ocean acidification, biodiversity loss, deforestation, pollution, and declining freshwater resources and fisheries. Examination of both hard science and interdisciplinary solutions (social, political, educational) to environmental problems. P/NP or letter grading.

**42. Poetry in Age of Mass Incarceration (5)** Seminar, three hours. Examination of function of poetry in relation to mass incarceration. Examination of contemporary American carceral history and various tools that poets have used to challenge dichotomy of innocence versus criminality. Some tools include writing poems about police violence, editing anthologies with creative works of incarcerated people, and teaching poetry in detention centers. Examination of how poets have striven to make legible state violence where it is otherwise unseen. In workshop component, students respond creatively to works discussed during seminars in order to better understand and confront one of largest social issues of our times. This generative practice allows for better development of portfolio of literary techniques to use while writing creatively. Students learn how to affirmingly critique work of their peers, and receive criticisms of their own works. Letter grading.

**43W. Science, Rhetoric, and Social Influence (6)** Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Science writing, particularly scientific texts, both contemporary and historical, that have been used to communicate science to and influence large groups of people's beliefs and behavior. What is it about certain scientific texts that change way we think and have potential to affect social policy? Texts cover variety of topics from evolution to nutrition and food industry to current debates about climate change. Students encouraged to practice science writing themselves. Satisfies Writing II requirement. Letter grading.

**44. Society of Excess: On Waste, Consumer Culture, and Environment (5)**

Seminar, three hours. Designed for College Honors students. Examination of waste in both real and virtual worlds, looking in interdisciplinary ways at various cultural representations of trash set against backdrop of society of excess and environment constantly threatened by overflowing and mismanaged waste, including social and cultural responses to physical waste and cyber battle against Internet debris. P/NP or letter grading.

**46. Drugs in Society: Interdisciplinary Perspective on Drug Use, Abuse, Treatment, and Intervention (5)** Seminar, three hours. Examination of drug use and abuse and consequent social issues and policies both historically and in the contemporary U.S., including discussion of current research on neurobiological properties of different drugs and corresponding clinical interventions. P/NP or letter grading.

**48. Politics of Reproduction (4)** Seminar, three hours. Examination of complex relations between individual, local, and global interests as they shape and reflect reproductive practices, public policy, and exercise of power. P/NP or letter grading.

**49. Evidence in Law, Science, History, and Journalism (4)** Seminar, four hours. Rigorous study of ways in which lawyers, scientists, historians, and journalists handle evidence, with aim of advancing cross-disciplinary inquiry to produce a common vocabulary and set of concepts that allow for discussion of evidentiary issues in differing fields of inquiry. P/NP or letter grading.

**50. Creating Your Roadmap (5)** Seminar, three hours. Introduction to selected signature approaches to learning (interdisciplinary, experiential, integrative, illustrative), ways of being (inclusivity, self-awareness, curiosity, independence, resilience, generosity, distinctiveness), and habits of doing (collaboration, creativity, innovation). Incorporation of empirical research and writing from different academic disciplines to help students understand rationales behind those approaches and associated applications for undergraduate learning. Students design e-portfolio. Students develop personalized roadmap to guide their academic, personal, and professional growth during their undergraduate careers. May be repeated for maximum of 10 units. P/NP or letter grading.

**51. Music and Society (5)** Seminar, four hours. Minimal experience reading music desirable but not required. Analysis of Western art music, with focus primarily, but not exclusively, on music of late-18th through early-20th centuries through multiple analytical prisms: sociological, historical, political, and musical. P/NP or letter grading.

**55. Culture and History of Utopias (4)** Seminar, three hours. Study of major utopian writings from Thomas More's classical text to recent ecological and feminist utopian texts, with purpose of uncovering social, intellectual, and cultural landscapes underlying quest for a more perfect society. P/NP or letter grading.

**57. Language, Performance, and Culture (5)** Lecture, three hours. Mixture of lecture and discussion on topic of language and its relationship to performance and culture in 19th and 20th centuries. Study of theorists such as Saussure, Wittgenstein, Stanley Cavell, Judith Butler, and others, playwrights such as Wilde, Stein, and Samuel Beckett, and films such as *His Girl Friday* and *Monkey Business*. P/NP or letter grading.

**59W. Literature and Culture of the American South (6)** Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Examination of historical imagination as it is expressed in such writers as William Faulkner, Allen Tate, Flannery O'Connor, Richard Wright, and Zora Neale Hurston; in Civil War and WPA/FSA photography; and in Southern rhetoric and political documentary. Satisfies Writing II requirement. Letter grading.

**63W. Nabokov and Reading Minds (5)** Seminar, four hours. Enforced requisite: English Composition 3 or English as a Second Language 36. Designed for College Honors students. Examination of three works by Vladimir Nabokov, Russian-American writer, teacher, translator, lepidopterist, and composer of chess problems. Nabokov's eclectic writings lend themselves well to precepts of cognitive criticism—way of understanding world through relationship between literacy and thought. Reading and writing about art and science built into course. Satisfies Writing II requirement. Letter grading.

**64. Neuroscience and Psychology of Art and Biology of Aesthetics (5)** Seminar, three hours. Interdisciplinary approach to study of premise that beauty, whether of faces, art works, or other subjects, is processed by brain and can be understood as neurological and psychological phenomenon. P/NP or letter grading.

**65W. Body-Mind Literacy (6)** Seminar, four hours. Enforced requisite: English Composition 3. Designed for College Honors students. Examination of social and cultural assumptions about body and mind and how they are integrated and/or disconnected. Experiential and interdisciplinary approach. Satisfies Writing II requirement. Letter grading.

**70A. Genetic Engineering in Medicine, Agriculture, and Law (5)** Lecture, three hours; discussion, two hours. Not open to students with credit for Life Sciences 3, 4, former Microbiology 7, or Molecular, Cell, and Developmental Biology 70. Historical and scientific study of genetic engineering in medicine, agriculture, and law, including examination of social, ethical, and legal issues raised by new technology. P/NP or letter grading.

**70AL. Gene Discovery Laboratory (5)** Seminar, three hours; laboratory, five hours. Recommended requisite: course 70A. Laboratory work in genomics research and seminar discussion that apply experimentally concepts and techniques taught in course 70A. P/NP or letter grading.

**71. Cross-Cultural Approaches to Media History and Culture (5)** Seminar, three hours. Examination of media, media history, and media culture from cross-cultural perspective, one that demands redefinition of media and understanding of art in cross-cultural context. P/NP or letter grading.

**73. Elementary Particles in the Universe (4)** Lecture, two hours; discussion, 90 minutes. No special mathematical knowledge required. Examination of elementary particle physics, including status of its current study in laboratories around the world and its role in assessing the early evolution of the universe. P/NP or letter grading.

**77. Greeks and Persians: Ancient Encounters from Herodotus to Alexander (5)** Seminar, three hours. Designed for College Honors students. Examination of multiple encounters between Greeks and Persians in antiquity, from origins of Achaemenid Empire through its conflicts with Greek world of Mediterranean, to Alexander's defeat of Darius III. Consideration of mutual constructions of other in antiquity, Near Eastern versus Greek testimonia, and art and archaeological evidence of these two civilizations. P/NP or letter grading.

**78. Science and Religion from Copernicus to Darwinism (5)** Seminar, three hours. Are science and religion incompatible? It appears so, but struggles of scientists such as Darwin, Galileo, and Newton tell far richer story. Sometimes supporting each other, sometimes in competition, science and religion were, and remain, in constant dialog. Letter grading.

**79. Personal Financial Health: Theory and Practice (6)** Seminar, three hours; fieldwork, four hours. Designed for College Honors students. Special economics or mathematics preparation not required. Theory and practice of managing financial health, allowing for broad discussion of larger theoretical picture of variables affecting economy and practical hands-on look at personal finance, including budgeting, debt, insurance, investing, and purchasing. Examination of variety of financial issues through three principal standpoints: psychology of finance, historical perspective of finance, and socioeconomic perspective of finance. P/NP or letter grading.

**80. Cossacks and Narratives about Them (5)** Seminar, four hours. Designed for College Honors students. Examination of two Cossack societies: Ukrainian (Zaporozhian) Cossacks and Russian (Don) Cossacks. Both emerged in 15th and 16th centuries as warrior societies along contact zone between Slavic world and Muslim Tatar and Turkic world. Their frontier status and liminal culture proved to be mythogenic, and Cossacks figure prominently in imagination of cultures they impacted over centuries, especially in folklore, literature, film, and opera. Study of Cossacks through these media to understand not just Cossack society but ways in which Cossacks have been viewed through paradigms of Polish, Russian, Ukrainian, Jewish, Ottoman, and west European cultures. P/NP or letter grading.

**81. Poetry and Protest Movements (5)** Seminar, three hours. Examination of role that poetry has played in social justice movements globally throughout 20th and 21st centuries. Includes creative writing seminar and workshop component. P/NP or letter grading.

**82. Community and Labor Development from Ground Up (4)** Lecture, three hours; discussion, one hour. Introduction to practical applications of community development and outreach efforts in Los Angeles area, with projects from Community Outreach Partnership Center within School of Public Policy and Social Research. P/NP or letter grading.

**83W. Politics and Rhetoric of Literature (6)** Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Examination of relationship among politics, rhetoric, and literature in study of literature from classical times to the present, broadening into general discussions of development of political discourse in Western thought, particularly conflict between self and state, between ideology and the practical business of living. Satisfies Writing II requirement. Letter grading.

**84. Conflicts between Languages (5)** Seminar, three hours. Introduction to potentially conflict-ridden language situations in three countries abroad and discussion of various aspects of minority languages in the U.S. P/NP or letter grading.



**85. Biological Clock (5)** Seminar, four hours. Designed for College Honors students, but open to all majors. Rotation of Earth imposed diurnal oscillations of physical changes on all living organisms on Earth. Protein complexes, called circadian or biological clock, allow organisms to anticipate and adapt to daily environmental changes, and knowledge of it comes from molecular biology, biochemistry, cell biology, genetics, and genomics. Study of these processes and interdisciplinary methodologies to understand how biological clock works and how it affects health and well-being. P/NP or letter grading.

**86. Psychology of Fear (5)** Seminar, three hours; fieldwork, one hour. Examination of phobias, including inquiry into how people are distressed by intense fear, examination of structures and processes of irrational fears, and discussion of courage and fear reduction strategies. P/NP or letter grading.

**87W. Worlds of Neil Gaiman: Graphic Novels, Social Media, and Fantasy Fiction (5)** Seminar, four hours. Enforced requisite: English Composition 3. Designed for College Honors students. Examination of eclectic art of Neil Gaiman, exploring his contributions to children's and young adult literature, novels, graphic novels, video games, film and television, and online writing. Use of multiple lenses to understand his work, including philosophy, cultural studies, and media studies. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Hollywood and Global Responsibility (5)** Seminar, three hours. Designed for College Honors students. American filmmakers have enormous power to reach global audiences. When they use this platform to make films that flout social norms still respected in most parts of world, objections arise. Where is line between free speech and free artistic expression and social responsibility? How can Hollywood become more globally responsible given its business realities and lack of government oversight? Study of different case studies affecting different countries and cultures to illuminate discourse on ethics and art. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101D. Counseling Multicultural Communities (2)** Seminar, two hours. Study of issues of culture and identity in cross-cultural counseling, including development of working model. P/NP grading.

**101E. Leading Undergraduate Seminars (1)** Seminar, one hour. Limited to students who have been accepted into Undergraduate Student Initiated Education (USIE) program. Learning and exploration of issues that are integral to developing seminars and development of skills to become effective student facilitators. Practical teaching strategies and techniques, as well as pedagogical, organizational, and technological issues confronted by new instructors. Discussion of key topics, followed by discussion of syllabi that students are developing for their seminars and conducting of micro-teaching presentations. Guest speakers expand on topics that arise from class discussions. May be repeated once for credit. P/NP grading.

**101G. Graduate School Preparation (2)** Seminar, two hours. Limited to AAP students. Designed to help AAP students familiarize themselves with academic disciplines they would like to pursue in graduate school. Through course readings, guest speakers, and interactive assignments, students learn more about their graduate school options and how to navigate application process. P/NP grading.

**102. Culture, Media, and Los Angeles (6)** (Same as African American Studies M102 and Asian American Studies M160.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

**103. Scientific Knowledge, Industrial Growth, and Social Policy (5)** Lecture, three hours; laboratory, two hours. Examination, using nanotechnology, of both benefits and risks to economy and society when new technologies are in process of development. P/NP or letter grading.

**104. Fundamental Forms of Social Relationships from Theory to Research Design (5)** Seminar, three hours. Relational models theory posits that four elementary models organize social coordination, emotions, motives, and norms in virtually all domains and cultures. Study and critique of theory, development of research questions, planning of study, design of its methodology, and writing of research proposal. P/NP or letter grading.

**105. Racial and Ethnic Disparities in Healthcare (5)** Seminar, three hours. Examination of ways in which race and ethnicity impact delivery of healthcare in U.S. and discussion of policies and proposals to address disparities in healthcare and diversity in healthcare professionals. P/NP or letter grading.

**106. Imaginary Women (5)** (Same as Gender Studies M106.) Seminar, four hours. Designed for junior/senior College Honors students. Study of four female cultural archetypes—absconding wife/mother, infanticide mother, intellectual woman, and warrior woman—as they appear in their classical and modern manifestations in European and American cultures. P/NP or letter grading.

**107. Literature and Political Order: Homer, Shakespeare, Dostoevsky (5)** Seminar, three hours. Designed for College Honors students. Examination of political order and questions of violence, power, leadership, and ideology through close readings of literary texts, specifically Iliad by Homer, Julius Caesar and Henry IV, Part 1 by Shakespeare, and Brothers Karamazov by Dostoevsky. P/NP or letter grading.

**108. Ancient Rome and the Monuments of Washington, D.C. (5)** Seminar, three hours. Exploration of public buildings, marble monuments, and heroic statues of Washington, D.C., inspired by memory and ruins of classical antiquity, and how these evocations have meaning today. Consideration of obelisk, Greek temple, and Pantheon and American monumental counterparts, Washington Monument, Lincoln Memorial, and Jefferson Memorial. Examination of ancient inspirations, historical background, architectural design, and art of these monuments in context of shifting public ideologies and local politics in Washington. Public buildings including U.S. Capitol, Supreme Court Building, and Library of Congress, publicly commissioned statues of war heroes (Revolutionary and Civil), monuments to honor veterans of Vietnam, Korean, and Second World War conflicts, and American presidents. P/NP or letter grading.

**109. Living Consciously: Philosophy in Everyday Life (5)** Seminar, three hours. What do decisions you make and actions you take say about who you are? What does it look like when you consciously inform your everyday life with your own mindfully developed way of seeing world? Through readings, discussions, exercises, and writing, exploration of practice and ensuing results of living consciously. Students develop and articulate their personal philosophies through intensively and personally exploring various ways of thinking about and acting in world, and through exploring how social world influences and creates philosophies by which we live (whether we know it or not). Letter grading.

**110. Marxist and Post-Marxist Approaches to Cultural Studies (4)** Seminar, four hours. Examination of Marxist and post-Marxist approaches to study of culture, including classic texts, theoretical and empirical works, and the Marxist roots of postmodernism. P/NP or letter grading.

**111. Stress and Coping (4)** Seminar, four hours. Examination of research and theory on stress and coping, with emphasis on physical and mental consequences of stress and moderators of both social support and personality in coping strategies. P/NP or letter grading.

**112. Poetry as Resistance: Remixing Archive (5)** Seminar, three hours. Experiential learning course with focus on contemporary American poets of color who remix and reinvent past in their work. By building their poetry around historical documents, archives, and museum holdings, Theresa Hak Kyung Cha, Robin Coste Lewis, Layli Long Soldier, J. Michael Martinez, M. NourbeSe Philip, Claudia Rankine, and Tracy K. Smith appropriate, recycle, and renew historical texts and artifacts to resist politics of present moment. All seven poets have done significant research to create their poetry. Study of archival space, practices, and research methods in conjunction with UCLA Library Special Collections, Fowler Museum, and Hammer Museum to better understand their poetry. Culminates in creative research project. No poetry, art, or research experience necessary. P/NP or letter grading.

**113. Hyperconnected World: Society and Internet (5)** Seminar, three hours. Designed for College Honors students. Exploration of social, political, economic, psychological, and cultural dimensions of our hyperconnected world via Internet. Topics include transformations of social relationships online, virtual versus real communities, identity and its creations, trust and deception,

politics and social media, surveillance and privacy, economics, intellectual property, culture, education, and knowledge, and digital wellness. P/NP or letter grading.

**114. Architecture from Los Angeles: Work of Frank Gehry, Thom Mayne, and Greg Lynn (5)** Seminar, three hours. Within last 30 years, body of architectural work originating in Los Angeles but reaching world both in material construction and aesthetic influence has emerged. Study of works of three seminal architects—Frank Gehry, Thom Mayne, and Greg Lynn. Site visits and hands-on practice in how to read architectural plans and how to use computers and modeling in architectural study and design. P/NP or letter grading.

**115. Poetry and Society in England, 1588 to 1688: Verse, Politics, Religion, and Sexuality from Spanish Armada to Glorious Revolution (5)** Seminar, three hours. Designed for College Honors students. Poetry of England in century between 1588 and 1688 through prism of evolving political, philosophical, theological, sexual, economic, and scientific practices of that day and vice versa to understand poetry in cultural and historical context. Students research widely on range of subjects from alchemy to zoology and become class resource on some relevant topic such as Renaissance medicine, Calvinism, scholasticism, Cromwell and New Model Army, Elizabethan foreign policy, Stuart architecture, agricultural and dietary changes, and printing and publishing conventions. P/NP or letter grading.

**116. Art Alive: Art and Improvisation in Museums (4)** (Same as Theater M187.) Seminar, four hours. Offered in collaboration with Los Angeles County Museum of Art (LACMA). Interpretation of art in collection through acting, dialogues, movement, and music. Research into history and art history and production of creative performance piece required. P/NP or letter grading.

**117. London and Culture of Male Homosexuality, 1870 to 1900 (5)** Seminar, four hours. Designed for College Honors students. Examination of male homosexual subculture that thrived in London during period when brilliant Irish writer Oscar Wilde (1854 to 1900) was sent to jail for committing acts of gross indecency. Study of Wilde trials, cultural consequences of Labouchere Amendment criminalizing male homosexual acts, some of Wilde's writings, and exciting new writings that have come to light offering insight into links that gay men in London had with theatrical world, prostitution, aristocrats, and underground publishing. P/NP or letter grading.

**118. Roots of Patriarchy: Ancient Goddesses and Heroines (4)** (Same as Gender Studies M128.) Lecture, three hours. Examination of ancient goddesses and heroines—European, Neolithic, Near Eastern, Celtic, Scandinavian, Balto-Slavic, Indo-Iranian, and Greco-Roman—using translations of ancient texts, archaeological evidence, and feminist methodology in order to discover implications of ancient patriarchy on modern society. P/NP or letter grading.

**119. Hollywood and Cultural Diversity in America (5)** Seminar, three hours. Designed for College Honors students. Hollywood filmmakers often produce movies where characters confront societal issues such as sexism, racism, and other forms of discrimination. So it is surprising to see recent media coverage that turns magnifying glass around and exposes Hollywood's own severe problems when it comes to racial and cultural diversity. Exploration of differing media representations—how they occur, why they persist, and what they can teach about current racial divides in America. Examination of how Hollywood represents different races, cultures, and groups. P/NP or letter grading.

**120. Art and Performance: Interdisciplinary Approach to Collections of Getty Center (4)** (Same as Theater M109.) Lecture, four hours; discussion, one hour. Drawing from objects in five major collections at Getty Museum, focus on five parallel historical periods in which political, social, and aesthetic philosophy of age is examined in musical and dramatic performance. Letter grading.

**121. Psychoanalysis before Freud, and a Little After (5)** Lecture, three hours; discussion, one hour. Examination of different ways human beings have developed conceptions of themselves through history from early civilizations through Middle Ages, Renaissance, Reformation, scientific revolution, Enlightenment, origins of modern world, Freud's fin de siècle Vienna, and post-Freudian visions; investigation of various interactions of these different conceptions in present day. P/NP or letter grading.

**122. Chemical Communication across Tree of Life (5)** Seminar, three hours; discussion, two hours. Designed for College Honors students. Chemical communication governs relationships among most biological entities, across entire tree of life from viruses to Homo sapiens. Bioinspired devices are using knowledge gleaned from chemosensory systems to change face of robotics, with wide applications in consumer industries, homeland security, and space exploration. Chemical, physical, and biological principles to be combined as pedagogical tools for teaching larger lesson in science. Synthesis of information and concepts across disciplines to develop student hypotheses and conclusions. P/NP or letter grading.

**123XP. Philanthropy as Civic Engagement (5)** (Formerly numbered M123.) (Same as Community Engagement and Social Change M122XP.) Seminar, three hours. Limited to juniors/seniors; application required. Study of history, philosophy, and practice of philanthropy. Practical experience in setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations. Letter grading.

**124. Midwives, Mothers, and Medicine: Perspectives on History of Childbirth (4)** Seminar, three hours. Using examples from history and anthropology, examination of variety of practices associated with childbirth over time and across cultures, addressing such themes as shifting relations among birthing women, midwives, and medical men and cultural meanings of birth. P/NP or letter grading.

**125. Communities and Nations in Conflict: Theory and Practice of International Conflict Resolution (5)** Lecture, three hours; discussion, one hour. Introduction to theory and practice of conflict resolution, with emphasis on international conflict. Transitional justice mechanisms, from international criminal tribunals, special courts, and International Criminal Court to indigenous approaches such as community justice systems. Examination of environmental conflict resolution, homeland security and terrorism, role of gender in conflict, and role of media in conflict. P/NP or letter grading.

**126. Waves of Resistance: Race, Empire, and Social Justice in Asia and Pacific Islands (5)** Seminar, three hours. Designed for College Honors students. Examination of historical and contemporary moments of racial violence, empire, and social justice in Asia and Pacific Islands. Global forces such as capitalism, colonialism, and globalization played significant role in cultural, economic, and political organization of places such as American Samoa, Guam, Hawai'i, Marshall Islands, Philippines, Okinawa, and South Korea. Exploration of how various groups of people have responded to these forces to have better understanding of how race, empire, and social justice have connected these distant and diverse areas and peoples. P/NP or letter grading.

**127. Citizenship, Leadership, and Service (4)** Seminar, three hours; fieldwork, three hours. Interactive participatory study of interactions between citizenship, leadership, and service, including both theoretical work in classroom and practical work in service organizations in the field. P/NP or letter grading.

**128. Humor as Means of Social Control (5)** Seminar, four hours. Designed for College Honors students. Application of venerable humanist insights and social scientific thinking to contemporary social phenomenon of human laughter and humor. While Aristotle and Hobbes thought humor was bad for society, Locke and Bakhtin would have disputed them for different reasons. Integration of their ideas and ideas of evolutionary anthropology and linguistics, as well as social and biological science, to critically evaluate how social scientists investigate mass media political satire of today. Letter grading.

**129. Research in Psychology and Legacy of John Wooden (5)** Seminar, four hours. Designed for College Honors students. Exploration of life and work of Coach John Wooden, with particular attention to his pyramid of success, how he was viewed and is remembered by his players, and relationship between his philosophy and academic research. His philosophical approach as lens through which to explore research in fields of sport and education psychology. Connects different elements of Coach Wooden's pyramid of success (and other aspects of his coaching philosophy) to research in psychology. P/NP or letter grading.

**130. Speeding the Cure: Activists, Experts, and Health Care (5)** Seminar, four hours. Study of how activists, experts, and political movements shape public-health policy and biomedical science. What are best ways to confront health challenges, from rare diseases to pandemics? Analysis of scientific, medical, social, economic, and political aspects of health inequities, drug pricing, disability policy, as well as the role of scientific expertise in formulating goals and strategies. Topics include viruses and vaccines, rare diseases, aging, autism, AIDS, breast cancer, clean water, gun violence, and prostate cancer. P/NP or letter grading.

**131. Global Dimensions of Education and Inequality (5)** Seminar, three hours. Examination of role that education plays in maintaining and perpetuating poverty and inequality. Examination of how various reform strategies that have been proposed to spur development of human capital and local development are impacting poor countries and poor people who reside in rich and poor countries. Examination of how different countries have used education to promote social equality and development and analysis of why some countries appear to be making more progress than others. Consideration of how factors such as history, particularly related to colonialism, political economy, and culture affect character and performance of schools. P/NP or letter grading.

**132. New Women and Activism from America to Asia (5)** Seminar, three hours. Designed for College Honors students. Spanning of academic disciplines and regional boundaries by looking at women's movements in U.S. and East Asia in early 20th century, with examination of how issues of women's rights, labor rights, and race/nation identities united and divided women

across classes and national borders. Examination of suffrage movement in 1913 New York and parallel movements in East Asia (Japan, Korea, China) that adopted and adapted some of these same ideas to their own unique historical circumstances. Use of highly successful *Reacting to Past* historical role-playing game titled *Greenwich Village, 1913: Suffrage, Labor, and New Woman*. P/NP or letter grading.

**133. Practice and Ethics of Ethnographic Fieldwork (5)** Seminar, three hours. Examination of ethics and practices of ethnographic fieldwork. This is not field methods course but one intended to convey rich knowledge fieldwork can produce in many disciplines and kinds of ethical issues raised in doing fieldwork. P/NP or letter grading.

**134. Democracy and Utopias (5)** Seminar, three hours. Designed for College Honors students. Political culture of modern democracy fosters idea of progress and constant reform and is also wary of radical upheavals. Political culture of ancient Greek democracy made possible two things: awareness of having achieved unmatched superiority over any other society and birth of utopia. Democracy praised itself as perfect form of government, but it let flourish counterfactual objections to quest for absolute, just, and blissful political order. Examination of this paradoxical link between democracy and utopia by tracing its history in works of Aristophanes, Plato, Thomas More, Tommaso Campanella, Francis Bacon, and Charles Fourier to show relevance to contemporary politics. P/NP or letter grading.

**135. Poetry and Society in England, 1588 to 1688 (5)** Seminar, four hours. Reading and discussion of poems to comprehend meaning and place in configurations of rapidly transforming society. Tensions and changes in that culture, and lives of authors, these works helped negotiate. How and why metaphorical and cavalier modes emerge in period of intense struggle. Interplay of form, content, and meaning within these modes. Evidence offered about personal psychology, gender politics, and status competitions of this period and its poets, especially Donne, Herbert, Jonson, Carew, and Marvell. What kind of work were the poems doing? How, and how well, were they doing it? And, what kinds of work should we do on them now? P/NP or letter grading.

**136. Art, Entertainment, and Social Change (5)** Seminar, three hours. Integrative examination of evolving impact of arts and entertainment industry on various aspects of society, including politics, self-concept, and experience of everyday life, among others. P/NP or letter grading.

**137. Living the Dharma in America: Perspectives on Race and Buddhism (5)** Seminar, three hours. Deconstruction of and deeper histories behind images of Buddhism such as bald, saffron-robed monks; ornate, golden temples with scent of incense; serene Zen meditation centers; and popular Buddhists from Richard Gere to Thich Nhat Hanh to the Dalai Lama. P/NP or letter grading.

**138. Empire, Border Crossing, and Multiethnic Storytelling (5)** Seminar, four hours. Exploration of evolution of postcolonial studies through contemporary works of multiethnic American literature. How do our primary texts of fiction or creative nonfiction question literary conventions of allegedly mainstream Euro-American literature? What manifestations of empire, diasporic mobility, and generic mutability unite or separate creative works in question? What meditations on identity and intersectionality do our creative and critical texts offer as they intersect notions of race, class, gender, sexual identity, ethnicity, nationality, and migration? What aesthetic or critical possibilities does multiethnic American storytelling open up for future of postcolonial and transnational studies? P/NP or letter grading.

**139. Confucius and His Legacies (5)** Seminar, four hours. Examination of Confucian Tradition, from Warring States period to popularization in 21st century. Society in which Confucius (551-479 BCE) lived. Study of *Analects* as core text of Confucianism. Confucius as object of ritual devotion and visual representations. Importance and impact of Confucius on Chinese and Asian culture. P/NP or letter grading.

**140. Dominants and Subordinates: Social Psychology of Privilege and Oppression in Public Education (6)** Lecture, four hours; discussion, one hour; tutoring, three hours. Study of social arrangements and temporary inequalities in contemporary American public school, showing how such entrenched inequalities tend to become permanent. Field component included. P/NP or letter grading.

**141. Biology and Medicine in Postgenomic Era (5)** Seminar, four hours. Requirement: Life Sciences 3. Discussion of human genomic project, comparative and environmental genomics, structural and functional genomics, transcriptomics, proteomics, pharmacogenomics, and metabolomics. P/NP or letter grading.

**142. Free Will and Moral Responsibility: From Neuroscience to Philosophy and Back (5)** Seminar, four hours. Survey of motivations, methods, and conclusions of neuroscientific and psychological investigations of free will. Consideration of neuroscientific arguments that humans are not free when they choose and of philosophical arguments about what is required for freedom

and what is required for responsibility. Discussion of extent to which philosophical investigations of free will inform neuroscience and whether and how experiments could be designed and carried out to better correspond with philosophical and legal debate on free will. P/NP or letter grading.

**143. Latinx Immigration Policy and Politics (4)** (Same as Chicana/o and Central American Studies M124.) Lecture, four hours. Critical introduction to U.S. immigration policies and politics, and their disproportionate impacts on Latinx community. Topics include some of root causes of Latin American migration; federal, state, and local immigration lawmaking; and how race, gender, and sexuality impact and are impacted by immigration policies (e.g., legalization, border militarization, deportation) and politics (from voting to activism). P/NP or letter grading.

**144. International Development: Using Your Major for Doing Well and Doing Good (5)** Seminar, three hours. The adoption of the United Nations' Sustainable Development Goals (2015) called for addressing extreme poverty, disease, environmental degradation, gender inequities, unemployment, and other problems afflicting people across the globe. Sustainability entails development solutions that endure and engage local people. The aim is to leverage local capacities to improve living conditions consistently. Students address questions such as: How does your major relate to one or more of the goals? Which goal speaks to your interest? What key concept or passion do you have that can contribute to addressing one or more of the goals? P/NP or letter grading.

**145. Politics of Crisis: Migration, Identity, and Religion (4)** (Same as Chicana/o and Central American Studies M126.) Lecture, three hours. Examination of individual and collective religious response of Latin Americans and Latinas/Latinos in U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Letter grading.

**146. Imagining Global Climate Change (5)** Seminar, three hours. Designed for College Honors students. Global and comparative study of regions in front line of climate change, such as tropical islands and poles that visibly confront sea level rise and glacial melt, through study of visual arts, literature, and film. Study of authors and artists from U.S., Australia, New Zealand, Guyana, Mexico, and Maldives to examine threat of climate change in its complex cultural imaginations. P/NP or letter grading.

**147. The Anthropocene: An Archaeological Perspective (5)** Seminar, four hours. Examination of new geological period, informally labeled the Anthropocene, in which environment is profoundly impacted by human activities. Evidence that anthropogenic forces have affected conditions on Earth during past two centuries, including loss of biodiversity, burning of fossil fuels, ocean acidification, and ozone depletion. P/NP or letter grading.

**148. Simulating Society: Exploring Artificial Communities (5)** (Same as Sociology M118.) Seminar, three hours; computer laboratory, one hour. Examination of social behavior through computer simulations of behavior in artificial communities. P/NP or letter grading.

**149. Art and Trauma (5)** Seminar, three hours. Examination of how slavery, war, psychiatric institutionalization, and child sexual abuse shaped singular artistic visions. Depictions of severe trauma can be expressed in several ways—external event (e.g., war), internal psychological process (e.g., depression), or symbolic unfolding (e.g., disintegration of individual). Manner in which trauma is embedded in brain and stored in memory is also critical. Exploration of research on memory and trauma, post-traumatic stress disorder (PTSD), and how severe trauma impacts brain. Studio component in form of individual and group projects to offer more tangible insight into process of art and trauma. P/NP or letter grading.

**150. Solo Performer's Toolbox: Storytelling for Artists and TED Talkers (5)** Seminar, three hours. Designed for College Honors students. Creation and presentation of original one-person performance speech. Development and writing of original script through exploration of personal themes, tone, and subject matter. Addressing of physical or emotional strengths and weaknesses in relation to creative processes of playwriting and performing. Breakdown, interpretation, and summation of one-character plays and synthesis of this knowledge to benefit writing and performance. Identification and exploration of student's unique personal voice in order to establish clear and creative point of view in developing or performing their story. Analysis of dramatic structure, dramatic action, and creation of believable and interesting character. Focus, concentration, imagination, and relaxation during their solo performance, and maintaining professional decorum and discipline. P/NP or letter grading.

**151. Victorian Sexual Scandals (5)** Seminar, three hours. Designed for College Honors students. Introduction to four major sex scandals that took place in London between 1870 and 1895 to understand ways in which institutions create frameworks for understanding dissident sexualities and gender identities, and relations between sexual scandals and legal actions. Sodomy trial of

Ernest Boulton and Frederick Park. Examination of extent of queer networks among gay men, transgender individuals, and their apparently straight admirers during time of Offences against the Person Act 1861. The Maiden Tribute of Modern Babylon, in which journalist W. T. Stead exposed extent of sexual trafficking of children. Series of murders in which bodies of women (several of whom were sex workers) were mutilated and disemboweled, attributed to Jack the Ripper. Trials of Oscar Wilde who was sent to jail for two years in solitary confinement with hard labor for gross indecency. P/NP or letter grading.

**152. (When) Do Leaders Make Differences? (5)** (Same as Anthropology M148 and Geography M142.) Lecture, two hours; discussion, two hours. Examination of leaders who did or did not succeed in effecting change, as background to understanding conditions under which leaders can make differences. Comparison of political leaders, business chief executive officers, sports coaches, and religious leaders. Letter grading.

**153. Comedy in Literature (5)** Seminar, three hours. Intense discussion of work of literature, typically play, novella, or novel. Study of comic works of literature, from Greeks to 20th century. P/NP or letter grading.

**154. Hollywood and Divided America (5)** Seminar, three hours. Exploration of role that media images and storylines play in current political and cultural debates in U.S. Examination of recent movies and television shows and other case studies to explore entertainment industry's impact on current discord in U.S. Discussion of motives of artists who speak out and arguments of their detractors. Consideration of whether Hollywood can still be positive force in divided America. P/NP or letter grading.

**155. Disease and Human Condition (5)** Seminar, four hours. Discussion and analysis of COVID-19. Exploration of scientific characteristics and historical manifestations of group of epidemic diseases that have shaped civilization: bubonic plague, smallpox, yellow fever, tuberculosis, cholera, influenza, polio, hemorrhagic fevers, and AIDS. Examination of biomedical characteristics of disease: causative agent or process; pathological effects in human body; course of disease; and epidemiological patterns of incidence and severity. Focus on each case during the period when it exercised its greatest effects. Emphasis on how historical manifestations of, and reactions to disease, are deeply embedded in social and economic structures, and medical knowledge, of its time. P/NP or letter grading.

**156. Political Opposition in Early Modern Europe (5)** Seminar, three hours. Designed for College Honors students. Examination of tradition of radical political movements from Italian Renaissance to French Revolution. Topics include Machiavelli's contributions to political thought, turmoil of 16th-century France and Dutch Republic and their radical underside of Protestant thought, French Wars of Religion, Dutch revolt against Spanish, English Civil Wars, and radical thought of European Enlightenment and its contributions to French Revolution. P/NP or letter grading.

**157. International Relations of Middle East (4)** (Same as Political Science M132B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Role of great powers in Middle East, with emphasis on American, Soviet, and West European policies since 1945. P/NP or letter grading.

**158. Justice and Moral Responsibility in Literature (5)** Seminar, three hours. Discussion of literature (drama and fiction) addressing themes of law, justice, government, and moral responsibility in public context. P/NP or letter grading.

**159. Feminism, Art, and Metaphors of Trauma (5)** Seminar, three hours. Exploration into visual metaphors of remembrance. Exploration, across several centuries, of artworks of feminist artists who have been exposed to—or ally with—relentless traumas, sexual violence, casualties of war, racial and social injustice, and trafficking of women and girls. Focus on visual manifestations of anguish, persistence, and reckoning that populate and coalesce in these artworks. Exploration of topics through group and individual studio art projects designed to give tangible insights into emergence of artworks manifested in wake of tragedy. P/NP or letter grading.

**160. Asceticism (5)** Seminar, three hours. Designed for College Honors students. Historical overview of literary, philosophical, and theological writings on asceticism, with particular attention to late antiquity and medieval periods. Study of asceticism from desert fathers to medieval female mystics, Weber on Protestantism, Nietzsche on ascetic ideal, and Foucault on ancient askesis. Literary readings include selections from Flaubert, Melville, Kafka, Eliot, and Weil. P/NP or letter grading.

**163. China's Rise: Critical Issues and Global Implications (5)** Seminar, four hours. Study of ascendancy of China in 21st century, with emphasis on global implications. Aspects of Chinese development that lend themselves to comparative analysis, including labor, environment, nationalism, migration, inequality, rule of law, social movements and authoritarianism, state capitalism, and China in Africa. P/NP or letter grading.

**164. Between Species: Human/Non-Human Animal Relationship (5)** Seminar, three hours. Exploration of intimate and changing relationship between human and non-human animals. Examination of how we conceptualize animals: as companions, food, workers, representatives of self, and more; rights—or lack thereof—of animals; our animal industries: factory farming, shelters and rescues, animal workers, entertainment, fighting, races, hunting, medical research, and more; boundaries between human and non-human animals; violence against animals, both individualized and institutionalized; animals as concept; and social construction the difference between human and non-human animals. Letter grading.

**165. Privacy versus National Security (5)** Seminar, four hours. Designed for College Honors students. Edward Snowden's disclosures of extent of government surveillance conducted by National Security Agency sparked national debate about scope and necessity of government surveillance programs. What is proper balance between privacy and national security in information age? Study of debate about constitutional values and moral responsibility, complicated by public fear, competing commercial interests, and international legal and diplomatic quandaries. P/NP or letter grading.

**166. Stories of Cultural Distance and Imposed Assimilation (5)** Seminar, three hours. Study helps discern how (auto)biographical and fictional stories reenact people's life experiences in zones of cultural difference. Focus on narratives presenting ethnic conflict and assimilation in Caucasus region and eastern Anatolia, beginning in 1850s and ending with aftermath of Armenian genocide. P/NP or letter grading.

**167. Modern Metropolis: Cultural Histories of Los Angeles (5)** Seminar, three hours. Interdisciplinary approaches to study of Los Angeles and its rise as global metropolis. Focus on art, architecture, literature, and other forms of cultural expression rooted in diverse communities of Los Angeles. P/NP or letter grading.

**168. Paris: Biography of City from 1715 to World War II (5)** Seminar, three hours. Designed for College Honors students. Exploration of history of Paris from death of Louis XIV to World War II. Study of consequences of rapid urbanization and reasons why Paris became fulcrum for political revolutions. Examination of Paris as locus of modernism, its rebuilding and design under Baron George Haussmann, impact of World War I and expat culture, and city's housing crisis. P/NP or letter grading.

**169. Imposture and National Identity (5)** Seminar, three hours. Cross-cultural approach to study of imposture (assumption of false identity) as window through which to examine cultural modernity and national identity. Study of literature, history, and film from Australia, United Kingdom, the U.S., Near East, and South Asia as way of trying to define both hypocrisies and creativity of imposture. P/NP or letter grading.

**170. Philanthropy: Confronting Challenges of Serving Disabled (5)** (Same as Disability Studies M171.) Lecture, three hours. Enforced requisite: Disability Studies 101 or 101W. Study of history, philosophy, and practice of philanthropy using lens of disability studies theory in conversation with important themes of charity, paternalism, and systems of dependency. Analysis of multiple perspectives of philanthropy to gain practical experience setting priorities and making philanthropic investments in Los Angeles-based nonprofit organizations serving people with disabilities. Letter grading.

**171. Emotion, Reason, and Political Power (5)** Seminar, three hours. Study of way in which philosophers, social theorists, cognitive scientists, and neuroscientists have characterized relationship between rationality, emotions, and participation in political life. Basic theoretical issues in emotion theory. Social constructivism versus basic emotion theory. Primary and complex emotions. Emotion classification models. Study of pride—shame and aggression—alarm systems. Anger and fear in relation to social-dominance hierarchies. Emphasis on anger, hatred, and resentment as key political emotions. Management and control of emotions. Emotions of powerlessness and empowerment. Alienation, anomie, and emotions. P/NP or letter grading.

**172. French Thinkers of Society (5)** Seminar, four hours. In-depth study of distinguishing perspectives of French theorists who wrote on society and its impact on individuals. Theorists include Pascal, Rousseau, Marcel Mauss, and Emile Durkheim from early modern period, contemporary thinkers such as Michel Foucault, Michel de Certeau, and Pierre Bourdieu, and two post-modern theorists, Guy Debord and Jean Baudrillard. P/NP or letter grading.

**173. American Political Thought from Revolution to Civil War (5)** Seminar, three hours. Exploration of nature of American political thought between Revolution and Civil War. Topics include nature of rights, federalism, constitutionalism, and democracy, as well as morality of slavery and legitimacy of succession. P/NP or letter grading.

**173A. Liberty, Government, and Society in European Thought (5)** Seminar, three hours. Examination of great works of European thought from 17th through 18th century, including works of John Locke, Montesquieu, David Hume, Edmund Burke, and Thomas Payne, with emphasis on legal, social, and moral preconditions of liberty. P/NP or letter grading.

**173B. Nature, Culture, and Capitalism in European Thought (5)** Seminar, three hours. Course 173A is not requisite to 173B. Designed for College Honors students. Examination of great works of European thought from 17th through early 20th century, including works by Thomas Hobbes, Adam Smith, Jean-Jacques Rousseau, John Stuart Mill, and Max Weber, with emphasis on intellectual foundations of liberal democracy and capitalism. P/NP or letter grading.

**174. Future Impact of Nano in New Technologies (5)** Seminar, four hours. Examination, for general audience, of science behind nanotechnology and way in which nano can potentially influence medical care, environment, energy issues, military, government, and economics. Demonstration of how nano, like current technology, cannot be separated from ethical, cultural, political, and social issues. P/NP or letter grading.

**176A. Context of Arab World: Cairo and Alexandria (4)** Seminar, four hours; fieldwork, eight hours. Enforced corequisite: course 176B. Introduction to some of most important cultural, historical, and political currents in contemporary Arab world, with special focus on Cairo and Alexandria. Offered in summer only. P/NP or letter grading.

**176B. Reading Arab World: Cairo and Alexandria (4)** Seminar, four hours; fieldwork, eight hours. Enforced corequisite: course 176A. Introduction to some of most salient literature in contemporary Arab world, with focus on Cairo and Alexandria. Offered in summer only. P/NP or letter grading.

**177. Biotechnology and Art (5)** Seminar, six hours. Bioartists use cells, DNA molecules, proteins, and living tissues to bring to life ethical, social, and aesthetic issues of sciences. Study of how bioart blurs distinctions between science and art through combination of artistic and scientific processes, creating wide public debate. Exploration of history of biotechnology as well as social implications of this science. P/NP or letter grading.

**178. Secret Coups, Imperial Wars, and American Democracy since World War II (5)** Seminar, three hours. Study of U.S. involvement, both covert and overt, in expeditionary wars since World War II, including involvement in Vietnam, Korea, Cuba, Iran, Guatemala, Nicaragua, and Chile, and implication of these actions for vitality of American democracy. P/NP or letter grading.

**179. Critical Vision: History of Art as Social and Political Commentary (5)** (Same as Communication M169.) Seminar, three hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.

**180. Structure, Patterns, and Polyhedra (5)** (Same as Chemistry M117.) Lecture, four hours; laboratory, two hours. Exploration of structures and their geometric underpinnings, with examples and applications from architecture (space frames, domes), biology (enzyme complexes, viruses), chemistry (symmetry, molecular cages), design (tiling), engineering (space filling), and physics (crystal structures) to effect working knowledge of symmetry, two-dimensional patterns, and three-dimensional solids. P/NP or letter grading.

**182. From Scientific Revolution to Industrial Revolution (5)** Seminar, four hours. Designed for College Honors students. Examination of most important development in making of Western power and hegemony: rise of new science and its relationship first to British, then European, Industrial Revolution. Once seen as solely product of material factors such as abundant coal, high wages, and available labor, Industrial Revolution is shown as also possessing critically important knowledge of components, one scientific culture derived from Newtonian science and mechanics. P/NP or letter grading.

**183. Being Human: Identity and Mental Illness (5)** (Same as Disability Studies M183 and Society and Genetics M183.) Seminar, three hours. Exploration of relationship between identity and mental illness through different approaches to nature and treatment of mental disorder, from biomedical accounts of brain-based pathology (and identity) to Mad Pride movement emphasis on mental diversity. Enduring philosophical questions regarding personal identity, consciousness, selfhood and mind-body relationship are investigated through consideration of conditions such as dissociative identity disorder, trauma, psychosis, autism, and depression. P/NP or letter grading.

**184. India and Pakistan: Historic Roots of Conflict and Prospects for Cooperation (5)** Seminar, three hours. Designed for College Honors students. History of India and Pakistan from demise of British India's Empire in mid-August 1947, with inept partition of Punjab and Bengal and bifurcated Pakistan, to current state of both nations and their potential for conflict and cooperation. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**193A. Journal Club Seminars (2)** Seminar, two hours; discussion, two hours. Study of key research journals and important research articles. Presentations by program faculty members and other leading researchers. May be repeated for credit. P/NP grading.

**193B. Journal Club Seminars: Arts and Humanities Summer Research Program (2)** Seminar, one hour; discussion, one hour. Limited to students selected for Humanities Summer Research Program. Study of humanities research journals and monographs. Weekly student research reports and presentations by humanities faculty members. May be repeated for credit. P/NP grading.

**193C. Journal Club Seminars: Mellon Mays Undergraduate Research Scholars (2)** Seminar, one hour; discussion, one hour. Limited to Mellon Mays undergraduate fellows. Study of key research journals and important research articles in arts, humanities, and social sciences. Weekly research reports and presentations by Mellon Mays students. Presentations by program faculty members and other leading researchers. P/NP grading.

**199. Directed Honors Studies (4)** Tutorial, two hours. Preparation: minimum of 4 units completed in Honors Collegium with grade of B or better, overall UCLA grade-point average of 3.0 or better. Special research/writing tutorial with director of one Honors Collegium course to pursue in greater depth significant topics from one collegium course. May be repeated for credit. P/NP or letter grading.

# Human Genetics

## Human Genetics Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**CM113. Ethical, Legal, and Societal Topics in Genetic Counseling (2)** (Same as Society and Genetics M113.) Lecture, two hours. Discussion of social, cultural, ethical, and legal issues in genetics and genetic counseling. Concurrently scheduled with course C413. Letter grading.

**C144. Genomic Technology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C244. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**199. Special Studies in Human Genetics. (2 to 8)** Tutorial, to be arranged. Students select instructor among eligible research faculty and carry out independent research project under instructor supervision. P/NP or letter grading.

### Graduate

**M203. Stochastic Models in Biology (4)** (Same as Biomathematics M203.) Lecture, four hours. Requisite: Mathematics 170A or equivalent experience in probability. Mathematical description of biological relationships, with particular attention to areas where conditions for deterministic models are inadequate. Examples of stochastic models from genetics, physiology, ecology, and variety of other biological and medical disciplines. S/U or letter grading.

**207A. Theoretical Genetic Modeling (4)** (Same as Biomathematics M207A and Biostatistics M272.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

**207B. Applied Genetic Modeling (4)** (Same as Biomathematics M207B and Biostatistics M237.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 200B, 202B (may be taken concurrently) or equivalent course-

work or consent of instructor. Covers basic genetic concepts (prior knowledge of human genetics not required). Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

**210. Topics in Genomics (2)** Seminar, two hours. Survey of current biological theory and technology used in genomic research. Topics include genomic technologies, functional genomics, proteomics, statistical genetics, bioinformatics, and ethical issues in human genetics. S/U grading.

**211. Mathematical and Statistical Phylogenetics (4)** (Same as Biomathematics M211 and Biostatistics M239.) Lecture, three hours; laboratory, one hour. Preparation: undergraduate course in statistics and probability. Theoretical models in molecular evolution focusing on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography and coalescent approaches. Examples provided from evolutionary biology and evolutionary medicine, with unique focus on implications for human disease processes. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

**236A. Advanced Human Genetics A: Molecular Aspects (4)** Lecture, three hours. Recommended preparation: prior knowledge of basic concepts in molecular biology and genetics. Advanced topics in human genetics related to molecular genetics and relevant technologies. Topics include genomic technologies, human genome, mapping and identification of disease-causing mutations, transcriptomics, proteomics, functional genomics, epigenetics, and stem cells. Reading materials include original research articles and reviews or book chapters. Letter grading.

**236B. Advanced Human Genetics B: Genetics and Genomics Aspects (4)** Seminar, four hours; discussion, four hours. Human genetics is fundamental scientific field that studies inheritance in humans and therefore also has immediate practical value for human health and disease. Identification of genes and genetic variation involved in human diseases, traits, and behavior is one of main goals of human genetic studies. Genomic technologies are rapidly advancing and allow for comprehensive and in-depth analysis of human genome. Covers different themes in field of human genetics, including genetics of monogenic disorders, genetic mapping of complex traits, transcriptome analysis, and epigenomic studies of human disease. Overview of human genetics through examination of selection of papers that highlight each of these themes. Letter grading.

**C244. Genomic Technology (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C144. S/U or letter grading.

**255. Mapping and Mining Human Genome (3)** (Same as Pathology M255.) Lecture, three hours. Basic molecular genetic and cytogenetic techniques of gene mapping. Selected regions of human genomic map scrutinized in detail, particularly gene families and clusters of genes that have remained linked from mouse to human. Discussion of localizations of disease genes. S/U or letter grading.

**282. Topics on Scientific Careers (2)** Lecture, two hours. Limited to graduate students. Covers topics related to scientific careers such as scientific writing and presentation (including to non-scientific audiences), grant writing and reviewing, curricula vitae, hiring process, social media usage, developing short- and long-term goals, and balancing career and non-work life. Exploration of differences between industry, government, teaching-college, and research-college careers. Active participation and oral and written presentations required. S/U grading.

**400A. Principles and Practices in Medical Genetics 1 (3)** Lecture, three hours. Limited to Genetic Counseling students, and open to medical genetics, molecular and cytogenetics fellows with permission. First course in three-course series. Focus on medical approaches to clinical genetics. Topics include molecular basis of genetic disease, modes of inheritance, principles of cytogenetics and molecular technologies, disorders of chromosomes, and fundamentals of prenatal diagnosis and screening. Addresses application of medical and genetic information to genetic counseling. Includes lectures, problem-based learning scenarios, examinations, and written reflections. Grand Rounds/Seminar series attendance is required component. Letter grading.

**400B. Principles and Practices in Medical Genetics 2 (3)** Lecture, three hours. Limited to Genetic Counseling students, and open to medical genetics, molecular and cytogenetics fellows with permission. Second course in three-course series. Focus on medical approaches to clinical genetics. Topics include cancer genetics, principles of mathematical and population genetics, multifactorial inheritance, risk assessment, teratology and dysmorphology.

Addresses application of medical and genetic information to genetic counseling. Includes lectures, problem-based learning scenarios, examinations, and written reflections. Grand Rounds/Seminar series attendance is required component. Letter grading.

**400C. Principles and Practices in Medical Genetics 3 (3)** Lecture, three hours. Limited to Genetic Counseling students, and open to medical genetics, molecular and cytogenetics fellows with permission. Third course in three-course series. Focus on medical approaches to clinical genetics. Topics include overview of various pediatric, adult-onset and biochemical genetic disorders, newborn screening, and current treatments of genetic disorders. Addresses application of medical and genetic information to genetic counseling. Includes lectures, problem-based learning scenarios, examinations, and reflections. Grand Rounds/Seminar series attendance is required component. Letter grading.

**401. Fundamental Genetic Counseling Skills (4)** Lecture, four hours. Limited to Genetic Counseling students. Introduction to profession of genetic counseling. Addresses fundamental genetic counseling skills and structure of genetic counseling session using didactic and active learning techniques, including role-plays, supplemented by activities in clinical settings. Topics include history of profession, theories of psychosocial counseling and its principles including reciprocal-engagement model of genetic counseling, active listening, verbal and non-verbal communication, empathy, how to ask questions, self-disclosure and self-involving skills, and structure of genetic counseling session. Practical exercises and supplementary activities address constructing genetic counseling session, contracting, obtaining family history, drawing and interpreting pedigrees, interviewing techniques, assessing level of patient and family understanding, case preparation, risk communication, development of educational materials, and referrals. General Genetics Case Conference attendance and clinic observations are required component. Letter grading.

**402. Reproductive Genetics in Practice (4)** Lecture, four hours. Limited to Genetic Counseling students. Focus on reproductive genetic counseling. Reproductive topics include prenatal screening and prenatal diagnosis, invasive and non-invasive procedures, teratogens, ultrasound findings, carrier screening, infertility assessment, preimplantation genetic diagnosis, and in vitro fertilization, reproductive options. Practical exercises include case preparation, medical and family history analysis, risk assessment and counseling, differential diagnosis development, diagnostic testing selection (including analytic validity, clinical validity, and clinical utility of screening and diagnostic tests), results interpretation, patient education, and psychosocial counseling specific to perinatal setting. General Genetics Case Conference attendance and clinic observations are required component. Letter grading.

**403. Specialty Genetics in Practice (4)** Lecture, four hours. Limited to Genetic Counseling students. Focus on specialty genetics topics including cancer, cardiogenetics, and neurogenetics. Exploration of aspects of these disciplines in context of genetic counseling. Discussion of impact of our growing knowledge of both common and rare genomic etiology on risk assessment, clinical management, and genetic counseling. Practical exercises include case preparation, medical and family history analysis, risk assessment and counseling, differential diagnosis development, diagnostic testing selection (including analytic validity, clinical validity, and clinical utility of diagnostic and predictive tests), results interpretation, patient education, and psychosocial counseling specific to cancer genetics, cardiogenetics, and neurogenetics. Patients as guest speakers offer patient perspective and experience. Letter grading.

**404. Advanced Genetic Counseling Skills (4)** Lecture, four hours. Prerequisite: at least four hours visiting/observing/shadowing at least two resource clinics/centers and at least four hours observing bereavement group(s) in past year. Limited to Genetic Counseling students. Focus on advanced psychosocial topics in genetic counseling along with social and legal issues in genetics and genetic counseling. Topics include family dynamics, burden of disease, crisis intervention, dynamics of grief and bereavement, multicultural sensitivity, coping mechanisms, transference and countertransference, and disability organizations and advocacy. Practice exercises include role-playing in range of advanced psychosocial situations, shadowing support groups and families, simulating patient full session under different scenarios including with interpreters and group presentations. Letter grading.

**405. Professional Development in Genetic Counseling (4)** Lecture, four hours. Limited to Genetic Counseling students. Focus on professional development as genetic counselor. Students are prepared to make transition to practicing professionals in areas of job search, billing/reimbursement/insurance coverage, service delivery, professional relationships and boundaries, clinical supervision, developing effective presentations for varied audiences, self-advocacy, and other relevant areas to help develop individualized plans for con-

tinuing professional development after graduate school. Includes lectures, discussion, interactive activities, projects, and oral presentations. Letter grading.

**406. Foundations of Genomic Medicine (2)** Lecture, two hours. Limited to Genetic Counseling students. Focus on fundamental concepts in human biology, with emphasis on implications and relevance to human genetic disease and integration of biology with mechanisms underlying disease development. Letter grading.

**410. Translational Genomics (3)** Lecture, two hours. Limited to Genetic Counseling students, and open to medical genetics, molecular and cytogenetics fellows with permission. Introduction to next generation sequencing (NGS) technologies, bioinformatics pipeline for analyzing NGS data, clinical interpretation of variants using ACMG guidelines, various databases used for variant interpretation, interpretation of exome clinical report, process of communicating results to patients and ethical, legal, and social implications (ELSI) of personal genomics. Offers hands-on laboratory-style experience to interpreting human exome/genome variants for genetics professionals and trainees. Students acquire necessary background to understand technical and analytical aspects of exome/genome test, make informed decisions about clinically relevant variants, and communicate results to patient or patient's family. Attendance at weekly Genome Data Board meeting is required. Letter grading.

**411. Foundations in Genetic Counseling Research (2)** Lecture, two hours. Limited to Genetic Counseling students. First of two-course series. Overview of research process, including literature review, research design, measurement methods, qualitative methods, and quantitative methods. Includes theory and elements of statistical analysis, data coding, data analysis tools, and interpretation of statistical results. Introduction to necessary tools to understand published research in genetic counseling and foundations necessary for design, conduct, and interpretation of their capstone project. How to conduct human subjects research responsibly and understand informed consent process. Letter grading.

**412. Research Applications in Genetic Counseling (2)** Lecture, two hours. Enforced prerequisite: course 411. Limited to Genetic Counseling students. Second of two-course series. Practical hands-on approach to conducting research. Offers more focused discussion on specific aspects of study design and sampling, elements of developing and using instruments to measure variables of interest, criteria for systematic literature review, appropriate univariate and multivariate analyses, and interpretation and report writing. Focus on skills students need to develop and conduct their capstone projects and research in genetic counseling. Students brainstorm ideas for their capstone project, develop research question, and submit research proposal for final project. Letter grading.

**C413. Ethical, Legal, and Societal Topics in Genetic Counseling (2)** (Formerly numbered 413.) Lecture, two hours. Limited to Genetic Counseling students. Discussion of social, cultural, ethical, and legal issues in genetics and genetic counseling. Concurrently scheduled with course CM113. Letter grading.

**414. Genetic Counseling Communication Seminar (1)** Seminar, one hour. Limited to Genetic Counseling students. Topics in communicating genetic counseling-related subject matter to diverse audiences using various communication modalities, with emphasis on crafting presentations for health care, public, and advocacy audiences. Includes critical reading, review, and discussion of literature in context of medical genetics, health care delivery, medical management, genetic counseling, and genetics laboratory testing. S/U grading.

**430. Clinical Applications of Cytogenetics and Molecular Techniques (1)** Lecture, one hour. Cytogenetics and molecular laboratory techniques to diagnose human genetic disorders. Topics include types of abnormalities seen in human genetic disorders, phenotypic consequences associated with these abnormalities, recurrence risk, uses and limitations of common cytogenetic and molecular technologies in clinical testing, current nomenclature, and written components of laboratory reports. Includes laboratory tours. Letter grading.

**431A. Fieldwork (1)** Fieldwork, three to four hours; discussion, one hour. Limited to Genetic Counseling Students. First fieldwork rotation to establish basic skills in genetic counseling. Students are supervised by certified genetic counselors and medical geneticists. In group discussion setting, students present cases along with relevant psychosocial, ethical, and professional issues to engage in active reflection of clinical supervision experiences, understand dynamics and responsibilities of supervisor/supervisee relationship, and identify personal growth opportunities and limitations in scope of patient practice. S/U grading.



**431B. Fieldwork (3)** Fieldwork, 35 hours. Requisite: course 431A. Limited to Genetic Counseling Students. Students use intermediate genetic counseling skills with direct patient contact in different clinical settings. Students are supervised by certified genetic counselors and medical geneticists. S/U grading.

**431C. Fieldwork (5)** Fieldwork, 15 to 20 hours; discussion, one hour. Requisite: course 431B. Limited to Genetic Counseling Students. Students use progressive genetic counseling skills with direct patient contact in different clinical settings. Students are supervised by certified genetic counselors and medical geneticists. In group discussion setting, students present cases along with relevant psychosocial, ethical, and professional issues to engage in active reflection of clinical supervision experiences, understand dynamics and responsibilities of supervisor/supervisee relationship, and identify personal growth opportunities and limitations in scope of patient practice. S/U grading.

**431D. Fieldwork (5)** Clinical, 15 to 20 hours; discussion, one hour. Enforced requisite: course 431C. Limited to Genetic Counseling students. Students utilize progressive genetic counseling skills with direct patient contact in different clinical settings. Students are supervised by certified genetic counselors and medical geneticists. Students see complex cases, and activities include follow-up activities on genetic test orders, referrals, resources, explaining genetic test results to patients, presenting cases at relevant case conferences, follow-up of action items from case conference, and exploring and addressing psychosocial aspects of patient encounters. Responsibility for conducting genetic counseling session from beginning to end. In group discussion setting, students present cases along with relevant psychosocial, ethical, and professional issues to engage in active reflection of clinical supervision experiences, understand dynamics and responsibilities of supervisor/supervisee relationship, and identify personal growth opportunities and limitations in scope of patient practice. S/U grading.

**431E. Fieldwork (5)** Clinical, 15 to 20 hours; discussion, one hour. Enforced requisite: course 431D. Limited to Genetic Counseling students. Students utilize progressive genetic counseling skills with direct patient contact in different clinical settings. Students are supervised by certified genetic counselors and medical geneticists. Students see complex cases, and activities include follow-up activities on genetic test orders, referrals, resources, explaining genetic test results to patients, presenting cases at relevant case conferences, follow-up of action items from case conference, and exploring and addressing psychosocial aspects of patient encounters. Responsibility for conducting genetic counseling session from beginning to end. In group discussion setting, students present cases along with relevant psychosocial, ethical, and professional issues to engage in active reflection of clinical supervision experiences, understand dynamics and responsibilities of supervisor/supervisee relationship, and identify personal growth opportunities and limitations in scope of patient practice. S/U grading.

**596. Directed Individual Study and Research. (2 to 12)** Tutorial, to be arranged. Individual study or research for graduate students. May be repeated for credit. S/U grading.

**597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. Individual study for MS comprehensive examination or PhD qualifying examinations. May be repeated for credit. S/U grading.

**598. MS Thesis Research and Writing. (2 to 12)** Tutorial, to be arranged. Preparation of research data and writing of MS thesis. May be repeated for credit. S/U grading.

**599. PhD Dissertation Research and Writing. (2 to 12)** Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. May be repeated for credit. S/U grading.

# Indo-European Studies

## Indo-European Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Visible Language: Study of Writing (5)** (Same as Asian M20, Near Eastern Languages M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium BC. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium BC and how it compares to other modern writing systems. P/NP or letter grading.

**70. Language and Evolution (5)** (Same as Linguistics M4.) Lecture, three hours; discussion, one hour. Homo Sapiens is only species on Earth with capacity to create infinite number of utterances from small inventory of speech sounds. How and why our species developed this ability is question of fundamental scientific and humanistic importance. Survey of origin of human language from number of intellectual perspectives, including linguistics, anthropology, and evolutionary biology. Exploration of relationship between language faculty and linguistic theory. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**131. European Archaeology, Neolithic to Bronze Age (4)** Lecture, four hours. Survey of European cultures from beginning of food-producing economy in 7th millennium BC to beginning of Bronze Age in 3rd millennium BC. P/NP or letter grading.

**132. European Archaeology: The Bronze Age (4)** Requisite: course 131. Survey of European cultures from around 3000 BC to the period of destruction of the Mycenaean culture about 1200 BC. Aegean area and rest of Europe.

**140. Food in Language and Myth (4)** Lecture, three hours; discussion, one hour. Introduction to study of food in fields of linguistics and mythology. What is special about language used to talk about food, what is history of food words, and how does language impact appreciation of food? How do myths and narratives revolving around food function in different cultures? Students explore history of food words and learn how to analyze food myths. Students become aware of how language in food is manipulated and how to tell more effective stories about food. P/NP or letter grading.

**150. Introduction to Indo-European Linguistics (5)** (Same as Linguistics M150.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: Linguistics 1 or 20. Indo-European languages (ancient and modern), including their relationships, chief characteristics, writing systems, and socio-

linguistic contexts; nature of reconstructed Indo-European proto-language and proto-culture. One or more Indo-European languages may be investigated in detail. P/NP or letter grading.

**C160. Indo-European Comparative Mythology and Poetics (4)** Seminar, three hours. Preparation: familiarity with at least one ancient Indo-European language. Comparison of major Indo-European mythological and poetic traditions and reconstruction of their common sources. Topics include divinities and their names; symbolic systems in social context; myths, folk narratives, belief systems; relations with other traditions; literary continuations of mythopoetic material. Concurrently scheduled with course C260. P/NP or letter grading.

**168A. Elementary Hittite (4)** (Formerly numbered M168.) (Same as Ancient Near East M168A.) Lecture, three hours. Recommended preparation: knowledge of language with case system. Introduction to Hittite grammar by series of graded lessons covering morphology and syntax, followed by readings of selected texts from variety of genres. P/NP or letter grading.

**168B. Elementary Hittite (4)** (Same as Ancient Near East M168B.) Lecture, three hours. Recommended prerequisite: course M168A. Readings of selected Hittite texts from variety of genres and historical periods. Individual topics in synchronic and historical grammar of Hittite and in history and culture of Hittites are treated in detail. P/NP or letter grading.

**172. Elementary Luwian (4)** (Same as Ancient Near East M172.) Lecture, three hours. Recommended preparation: knowledge of language with case system. Introduction to Luwian grammar through lectures covering morphology and syntax, and readings of selected hieroglyphic and cuneiform texts. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**200. Proseminar: Indo-European Studies (2)** Seminar, two hours every other week. Required of graduate Indo-European studies students during first year. Introduction to graduate-level research in Indo-European studies. S/U grading.

**205. Indo-European Phonology (4)** Lecture, three hours. Requisites: course M150, Linguistics 110. Study of proto-Indo-European phonology and its historical development into most important of oldest attested descendant languages. S/U or letter grading.

**210. Indo-European Morphology (4)** Lecture, three hours. Comparative study of proto-Indo-European nominal and verbal morphology and its historical development into most important of oldest attested descendant languages. S/U or letter grading.

**215. Indo-European Syntax (4)** Lecture, three hours. Requisite: course 210. Comparative and historical study of syntax in proto-Indo-European and most important of oldest attested descendant languages. S/U or letter grading.

**222A. Vedic (4)** (Same as Iranian M222A and South Asian M222A.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. May not be repeated for credit. S/U or letter grading.

**222B. Vedic (4)** (Same as Iranian M222B and South Asian M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. May be repeated for credit. S/U or letter grading.

**230A. Old Iranian (4)** (Same as Iranian M230A.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. May not be repeated for credit. S/U or letter grading.

**230B. Old Iranian (4)** (Same as Iranian M230B.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. May be repeated for credit. S/U or letter grading.

**238. Analyzing Historical Texts (4)** (Same as History M266C and Linguistics M238.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

**240. Comparative and Historical Grammar of Anatolian (2 to 4)** Lecture, three hours. Requisites: courses M150, M168A. Survey of comparative and historical grammar of Anatolian languages, with special focus on its implications for Indo-European reconstruction and for language change broadly. Grammatical features are observed in context through readings of representative texts from Anatolian languages including Hittite, Luwian, Lycian, and Palaic. S/U or letter grading.

**250A. European Archaeology (4)** Seminar, three hours. Studies in ancient European archaeological materials and their relationship to Near East, Western Siberia, and Central Asia. May be repeated for credit. In Progress grading (credit to be given only on completion of course 250B).

**250B. European Archaeology (4)** Seminar, three hours. Studies in ancient European archaeological materials and their relationship to Near East, Western Siberia, and Central Asia. May be repeated for credit. S/U or letter grading.

**C260. Indo-European Comparative Mythology and Poetics (4)** Seminar, three hours. Preparation: ability to read original sources in at least one ancient Indo-European language. Comparison of major Indo-European mythological and poetic traditions and reconstruction of their common sources. Topics include divinities and their names; symbolic systems in social context; myths, folk narratives, belief systems; relations with other traditions; literary continuations of mythopoetic material. Concurrently scheduled with course C160. S/U or letter grading.

**280A. Seminar: Indo-European Linguistics. (2 to 4)** Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. S/U or letter grading.

**280B. Seminar: Indo-European Linguistics. (2 to 4)** Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. S/U or letter grading.

**281A. Seminar: Indo-European Linguistics (2)** Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. May be repeated for credit. S/U or letter grading.

**281B. Seminar: Indo-European Linguistics (2)** Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. May be repeated for credit. S/U or letter grading.

**596. Directed Individual Studies (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Preparation for PhD Qualifying Examinations (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. Research for PhD Dissertation (2 to 8)** Tutorial, to be arranged. S/U grading.

# Information Studies

## Information Studies Courses

### Lower Division

**10. Information and Power (5)** Lecture, four hours. Introduction to core concepts of information and power and relation between them in range of social, economic, political, cultural, technological, and institutional contexts. Topics include markets and economies; cultural and media institutions; state interests in information; conflict and warfare; information organization, classification, and access; power and technology infrastructure; and intellectual freedom. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Digital Cultures and Societies (5)** Lecture, four hours. Examination of social and cultural contexts of global digital networks and systems. Exploration of ethical, infrastructural, and political questions raised at intersection of technologies and cultures. Topics include data surveillance, algorithms, artificial intelligence (AI) systems, digital economies and labor, social media revolutions, indigenous and non-Western uses of technology, digital media literacies, and more. Letter grading.

**30. Internet and Society (5)** Lecture, four hours. Introduction to key historical and sociotechnical developments that have given rise to today's Internet and related information and communication technologies, from networked computing and telecommunications in 20th century to contemporary digital networks and platforms. Focus on economic, political, and cultural consequences of those developments and technologies in society today. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**97. Variable Topics in Information Studies (4)** Seminar, four hours. Designed for freshmen/sophomores, but open to all undergraduate students. Exploration of changing set of basic concepts and issues in study of information, information technology, and society and culture at introductory level. May be repeated for credit with consent of instructor. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**C115. Introduction to Information Literacies (4)** Lecture, four hours. Foundational introduction to current and historical role and impact of information literacy—ability to identify, locate, critically evaluate, use, and create information effectively and ethically, for personal and scholarly uses. Topics include theory and practice related to impact of economic, legal, and social/environmental issues on development of, access to, use, and assessment of information, currently and historically; developing and refining information researching questions; conducting effective information researching; distinguishing among and critically evaluating information researching tools such as Google and databases, as well as types of items, such as ads, opinions, and factual studies; documenting sources used in information researching; effectively helping others learn information researching and critical thinking in support of equity and inclusivity; and designing, creating, and assessing on-line educational learning objects as positive contributions to addressing social/environmental issues. Concurrently scheduled with course C215. P/NP or letter grading.

**118. Data and Ethics in Society (5)** Seminar, four hours; discussion, one hour. Exploration of moral, social, political, and ethical ramifications of choices we make at different stages in social construction of data. Includes cultivating critical analysis of processes of data collection, data mining, data storage, and deployment of data affected by variety of different communities, publics, nation-states, and individuals. Students learn basics of ethical and socially

just frameworks to assess range of data-driven projects and platforms. Students gain understanding of social, historical, and political dilemmas of big data, algorithmic decision-making, predictive analytics, and distinct challenges associated with ethical, civil-, human-, and sovereign-rights models of engaging modern digital information era. Letter grading.

**121. Introduction to Media Literacies (5)** (Same as Education M121.) Seminar, four hours. Exploration of relationships between media, technology, and popular culture. Students guided to analyze media representations, question process of normalizing dominant ideologies, and create counter-hegemonic media messages. Through application of critical media literacy framework, students expand notions of literacy to be more inclusive of all types of texts; and deepen their abilities to question power of word, image, and sound-bite to represent social and environmental injustice. Letter grading.

**135. Environmental Justice through Lens of Media and Education (5)** (Same as Education M135.) Seminar, four hours. Exploration of human relationships with natural world, historically and today. Students take critical look at ways information has been shaped, audiences positioned, and movements manipulated to promote commercial interests over public good. Exploration of progressive movements that have in past challenged—and currently challenge—neoliberal agendas, extractive policies, and unsustainable practices. Letter grading.

**137. Critical Digital Media Literacies (4)** (Same as Education M137.) Lecture, four hours. Students question relationships with digital media and information society and explore how media and information communication technologies are improving society, strengthening democracy, and opening up opportunities for challenging hegemony and promoting social transformation. Problematicization of social media and questioning of ways it is being used to surveil, capture data, spread hate, mislead, distract, and destabilize democracies. Students analyze media representations, question process of normalizing dominant ideologies, and create counter-hegemonic media messages. Combines theoretical foundations of cultural studies and critical pedagogy with practical applications of new digital media and technology, as well as traditional print-based means of communication. Exploration of media representations of race, class, gender, sexual orientation, and other identity markers. Students analyze and create media projects related to education. Letter grading.

**139. Letterpress Laboratory (1)** Laboratory, one hour. Hands-on printing experience in letterpress shop designed to give students in information studies, design, or other disciplines understanding of printing process. Basic instruction provided, and students work on group project for duration of term. May be repeated twice. P/NP grading.

**180. Special Topics in Information Studies (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Selected topics or issues related to social, cultural, economic, or political aspects of information and information systems. Consult Schedule of Classes for topics and instructors. May be repeated once for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**199. Directed Research in Information Studies. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

## Graduate

**200. Information in Society (4)** Lecture, two hours; discussion, two hours. Examination of processes by which information and knowledge are created, integrated, disseminated, organized, used, and preserved. Topics include history of communication technologies, evolution of literacy, development of information professions, and social issues related to information access. Letter grading.

**201. Ethics, Diversity, and Change in Information Professions (4)** Lecture, two hours; discussion, two hours. Service learning course that serves as forum to discuss, learn, and understand ethical challenges of multicultural information society that shape societal, professional community, and individual views and impact professional practice, decision making, and public policy. Letter grading.

**202. History of Books and Literacy Technologies (4)** Lecture, two hours; discussion, 90 minutes. Issues in history of books, writing, and literacy technologies. Investigation of invention of writing, diverse cultural concepts of literacy, earliest use of systematic notation systems in Mesopotamia, and current development of devices and practices that shape contemporary concepts of book of future. Discussion of historical development of technology (tablets, scrolls, codices, illumination and illustration techniques, paper and mass production, photography, digital tools), institutions (libraries, printing and publishing industries), cultural issues and politics (publishing, censorship, colonialism, globalization), formats and styles (type design, graphic design, aesthetics), and some important figures and events in book history. Focused on Western traditions, but not to exclusion of developments in Asia, Near East, Islamic empire, and elsewhere, and questions of cultural diffusion and diversity encouraged. Letter grading.

**203. Seminar: Intellectual Freedom and Information Policy Issues (4)** Seminar, four hours. Investigation of concept of intellectual freedom, information policy issues, civil liberties and civil rights, censorship, and other restraints on access to information. Letter grading.

**206. Introduction to Economics of Information (4)** Seminar, three and one half hours. Introduction to key concepts, scholars, and studies in economics of information. Topics include economic value and measurement of information, information industries and markets, public goods theories of knowledge and information, network externalities, consequences of intellectual property regimes, information and economic development, information work and occupations, information and organizational processes, productivity paradox, and sectoral analyses of national and global information economies. Letter grading.

**208. Scholarly Communication and Bibliometrics (4)** Lecture, four hours. Preparation: one inferential statistics course. Survey of current theory, method, and empirical studies at intersection of scholarly communication and bibliometrics, seeking to understand flow of ideas through published record, whether in print, electronic form, or other media. Letter grading.

**210. Global Media and Information (4)** Lecture, three and one half hours. Question of what diversity and culture mean in era of distributed networks and massive technological diffusion looms. Part of this involves problem of how to work with differing ways of knowing, with differing ontologies. It is now widely accepted that global cultures and communities differ in way they practice knowledge, understanding, and making meaning of their worlds. How we draw boundaries around culture and community has become increasingly complicated, as culture becomes increasingly mediated and community has elements of local place and global imagination. How are political, economic, and cultural identities being shaped in global media culture? How does this shape nature of how power functions? How does this impact heritage, economy, politics, and identity? Letter grading.

**211. Artifacts and Cultures (4)** Lecture, two hours; discussion, two hours. Exploration of social, cultural, and technical practices through which meanings, memories, ideas, and knowledge-claims are generated. Concepts are recorded, reproduced, mediated, collected, and appropriated; they are sometimes forged, stolen, or subverted and are often shared, juxtaposed, exhibited, communicated, interpreted, remixed, or repurposed. Their formats may be oral and written, verbal and pictorial, aural and visual, and inscriptive and performative. Artifacts are single-medium and multimedia, static and dynamic, numerical and narrative, scholarly and popular, and analog and digital. They constitute documents, records, data sets, and cultural objects through which information and evidence are authored, published, collocated, exchanged, preserved, and accessed. Examination of these artifacts and their properties, types, and relationships: media, formats, genres, materials, states, contents, components, subjects, structures, functions, aesthetic qualities, roles, costs, affordances, and use values. Letter grading.

**212. Values and Communities in Information Professions (4)** Lecture, two hours; discussion, two hours. Forum to discuss, understand, and critique value systems and power structures embedded in information and work in diverse societies. Exploration of importance of thinking locally, from grassroots, in design, evaluation, and engagement with information institutions and technologies, ranging from archives and libraries to Internet. Aspects of information society that shape and are shaped by cultural, societal, professional, community, and individual values, including exploration of impact of such values on professional practice, decision making, and public policy. Letter grading.

**213. Current Issues in Librarianship (4)** Lecture, two and one half hours; discussion, one hour. Overview of historical and evolving conceptual foundations of librarianship, including professional associations, key practices, social context of library services, and current issues in library studies. S/U or letter grading.

**214. Informatics: Principles and Practices (4)** Lecture, three and one half hours. Theories, principles, and professional practices of informatics, including social analysis of information systems, values and design, infrastructural dynamics, user experience, and prospective analysis. S/U or letter grading.

**C215. Introduction to Information Literacies (4)** (Formerly numbered 448.) Lecture, four hours. Foundational introduction to current and historical role and impact of information literacy—ability to identify, locate, critically evaluate, use, and create information effectively and ethically, for personal and scholarly uses. Topics include theory and practice related to impact of economic, legal, and social/environmental issues on development of, access to, use, and assessment of information, currently and historically; developing and refining information researching questions; conducting effective information researching; distinguishing among and critically evaluating information researching tools such as Google and databases, as well as types of items, such as ads, opinions, and factual studies; documenting sources used in information researching; effectively helping others learn information researching and critical thinking in support of equity and inclusivity; and designing, creating, and assessing online educational learning objects as positive contributions to addressing social/environmental issues. Concurrently scheduled with course C115. S/U or letter grading.

**226. Indigenous Librarianship (4)** Lecture, three hours. Exploration of trends and topics in indigenous librarianship (IL), emerging branch of library and information science. Exploration of IL as category of social research that seeks to understand how particularities of sociohistorical, economic, political, and cultural conditions of indigenous communities shape perspectives and practices of collection, organization, preservation, and dissemination of knowledge. Investigation of practices associated with IL, focusing on means of revitalizing indigenous library institutions and knowledge systems; and on procedures and norms to guide responsible and respectful care for materials with indigenous content that are preserved outside of indigenous communities. Recommended for students doing interdisciplinary research with advocacy focus; and for those interested in working with tribal communities and/or collections containing indigenous materials. Letter grading.

**227. Information Services in Culturally Diverse Communities (4)** Lecture, four hours. Issues in provision of information services in multiethnic and multilingual society. Understanding role of information institutions in promoting cultural diversity and preserving ethnic heritage. Letter grading.

**228. Assessment, Measurement, and Evaluation of Information Organizations and Services (4)** Lecture, four hours. Introduction to assessment and evaluation as formal processes of inquiry with individual components. Demonstration of use of evidence gathered for planning, decision making, and accountability in information organizations. Review and implementation of various methods appropriate to design of assessment and evaluation studies. Letter grading.

**229C. Introduction to Slavic Bibliography (2)** (Same as Slavic M229.) Lecture, two hours. Introduction to Slavic and East European bibliography for the humanities and social sciences. Emphasis to be determined by requirements and background of enrolled students. Topics include relevant library terminology and concepts; survey of languages and transliteration systems; acquisition of Slavic and East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of online databases; compilation of bibliographies. S/U grading.

**233. Records and Information Resources Management (4)** Lecture, three hours. Introduction to records and information resources management in corporate, government, and other organizational settings, including analysis of organizational information flow, classification and filing systems, records retention scheduling, records protection and security, reprographics and image management technology, and litigation support. Letter grading.

**234. Contemporary Children's Literature (4)** Lecture, four hours. Reading interests and correlative types of literature surveyed with reference to growth and development of children. Emphasis on role of librarian in responding to needs and abilities of children through individualized reading guidance. S/U or letter grading.

**238. Environmental Protection of Collections for Museums, Libraries, and Archives (4)** (Same as Conservation M240.) Lecture, two hours; laboratory, two hours. Requisite: course 432. Review of environmental and biological agents of deterioration, including light, temperature, relative humidity, pollution, insects, and fungi. Emphasis on monitoring to identify agents and understanding of materials sensitivities, along with protective measures for collections. Letter grading.

**239. Letterpress Laboratory (1)** Laboratory, two hours. Hands-on printing experience in letterpress shop designed to give students in information studies, design, or other disciplines understanding of printing process. Basic instruction provided, and students work on group project for duration of term. S/U or letter grading.

**240. Management of Digital Records (4)** Lecture, three hours. Introduction to long-term management of digital administrative, information, communications, imaging, or research systems and records. Topics include electronic recordkeeping, enterprise and risk management, systems analysis and design, metadata development, data preservation, and technological standards and policy development. Letter grading.

**241. Digital Preservation (4)** Lecture, three and one half hours. Nature of digital media and networking necessitates reformulation of traditional concepts such as authenticity, authorship, and originals; information systems and metadata that are specifically designed to manage preservation process; new ethical, rights, and collaborative frameworks; and economic, legal, and policy tools with which to manage digital information over long term. Introduction to strategies, techniques, and standards, as well as continuing challenges related to preserving born-digital/born-networked/digitized materials (e.g., electronic records, digital archives, video games, scientific simulations, digital humanities environments, sound and moving image materials, social media and personal digital archives). Implications for digital preservation of new technologies and their applications. Letter grading.

**244. Collection Management for Archives, Libraries, and Museums (4)** (Same as Conservation M244.) Lecture, two hours; fieldwork, two hours. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Letter grading.

**245. Information Access (4)** Lecture, two hours; discussion, one hour. Requisites: courses 200, 260. Provides fundamental knowledge and skills enabling information professionals to link users with information. Overview of structure of literature in different fields; information-seeking behavior of user groups; communication with users; development of search strategies using print and electronic sources. Letter grading.

**246. Information-Seeking Behavior (4)** Lecture, three hours; discussion, one hour. Study of factors and influences, both individual and social, associated with human beings needing, using, and acting on information. Topics include information theory, human information processing, information flow among social and occupational groups, and research on information needs and uses. Letter grading.

**250. Techniques and Issues in Information Access (4)** Lecture, four hours. Requisite: course 245. General reference materials (not specific to subject access), with advanced work in reference process and in cognitive and behavioral aspects of inquirers and expert reference librarians. Letter grading.

**253. Medical Knowledge Representation (4)** (Same as Bioengineering M226.) Seminar, four hours; outside study, eight hours. Designed for graduate students. Issues related to medical knowledge representation and its application in healthcare processes. Topics include data structures used for representing knowledge (conceptual graphs, frame-based models), different data models for representing spatio-temporal information, rule-based implementations, current statistical methods for discovery of knowledge (data mining, statistical classifiers, and hierarchical classification), and basic information retrieval. Review of work in constructing ontologies, with focus on problems in implementation and definition. Common medical ontologies, coding schemes, and standardized indices/terminologies (SNOMED, UMLS). Letter grading.

**254. Medical Information Infrastructures and Internet Technologies (4)** (Same as Bioengineering M227.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to networking, communications, and information infrastructures in medical environment. Exposure to basic concepts related to networking at several levels: low-level (TCP/IP, services), medium-level (network topologies), and high-level (distributed computing, Web-based services) implementations. Commonly used medical communication protocols (HL7, DICOM) and current medical information systems (HIS,

RIS, PACS). Advances in networking, such as wireless health systems, peer-to-peer topologies, grid/cloud computing. Introduction to security and encryption in networked environments. Letter grading.

**255. Medical Decision Making (4)** (Same as Bioengineering M228.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of issues related to medical decision making. Introduction to concept of evidence-based medicine and decision processes related to process of care and outcomes. Basic probability and statistics to understand research results and evaluations, and algorithmic methods for decision-making processes (Bayes theorem, decision trees). Study design, hypothesis testing, and estimation. Focus on technical advances in medical decision support systems and expert systems, with review of classic and current research. Introduction to common statistical and decision-making software packages to familiarize students with current tools. Letter grading.

**260. Description and Access (4)** Lecture, three and one half hours. Social, cultural, and technical practices—formal and informal, institutional and personal—through which documents, records, and other forms of information are organized and represented. Design, development, and evaluation of techniques and tools, including data models, metadata schemata, search engines, and management systems in support of curatorship, stewardship, discovery, and use. Letter grading.

**262A. Data Management and Practice (4)** Lecture, three and one half hours. Designed for MLIS and PhD students. Survey of landscape of data practices and services, including data-intensive research methods; social studies of data practices; comparisons between disciplines; management of data by research teams, data centers, libraries, and archives; practices of data sharing and reuse; and introduction to national and international policy for stewardship of data. Assessment of data archiving needs of one research community and group project to develop real data management plan in partnership with UCLA researchers in other academic departments. Letter grading.

**262B. Data Curation and Policy (4)** Lecture, three and one half hours. Designed for MLIS students. Continuation of course 262A to address topics of data curation and policy in more depth. Data selection and appraisal, archives and repositories, economics of data management, data citation and metrics, technologies for data access and curation, provenance, intellectual property, policy roles of multiple stakeholders in data, and institutional challenges in curation and stewardship of research data. Assessment of data archives and repositories and group project to curate actual data of UCLA researchers in other academic departments. Letter grading.

**270. Systems and Infrastructures (4)** Lecture, four hours. Social, cultural, and technical practices through which information and media infrastructures—networks, systems, technologies, algorithms, interfaces, standards, institutions, bureaucracies, markets—are designed, built, maintained, and evaluated. Ways in which information infrastructures both shape and are shaped by governmental policy, institutional decision making, socioeconomic trends, labor movements, technical advances, and professional and personal value systems, at levels ranging from local to global. S/U or letter grading.

**271. Introduction to Computer Systems and Programming (4)** Lecture, three and one half hours. Introduction to computer programming and survey of foundational computer science topics, including boolean logic, computer architecture, operating systems, algorithms, networks, and databases. Focus on practical skills for manipulating library and archive metadata, such as searching, sorting, regular expressions, writing database queries, calling application program interface (API), and handling multiple serialization formats (XML, JSON, CSV, Excel). Emphasis on working with standard metadata encodings, such as MARC and EAD. Letter grading.

**272. Human/Computer Interaction (4)** Lecture, four hours. Survey of social, behavioral, design, and evaluation issues in human/computer interaction, with readings from several disciplines. Extensive use of technology demonstrations and class discussions. Recommended for students in any discipline involved in design or implementation of information technologies. Letter grading.

**274. Database Management Systems (4)** Lecture, three hours; laboratory, two hours. Theories, principles, and practicalities of database systems, including data models, retrieval mechanisms, evaluation methods, and storage, efficiency, and security considerations. S/U or letter grading.

**275. Community Media and Design (4)** Lecture, two hours; laboratory, two hours. Information professionals, scholars, activists, and information creators/designers/architects focus on questions of culture and community to engage students in understanding information resources as cultural objects. Role of cultural heritage institutions within dynamics presented, but most fundamentally on how communities in partnership with information professionals can create, author, and represent information on their own and within their own

terms. How new media can begin to serve as tool of empowerment rather than stratification. Study of impacts of technology on larger scales through readings and introductory sketches. Letter grading.

**278. Information and Visualization (4)** Lecture, two hours; discussion, 90 minutes. Access to and analysis of information through visualization has become increasingly prevalent as digital tools have made creation of such visualizations easier and more popular. Many software tools for such visualizations come from statistical packages; others come from GIS or spatial mapping, while others are more diagrammatic in design. Basic organization of graphical user interfaces depends on visualization of function, structure of and assumptions about user experience, and other graphical features that embody models of information in daily use. What are ways in which organization of visualization presents arguments about knowledge? What historical and critical tools can be brought into useful dialog with contemporary visualizations? Letter grading.

**279. User Experience Design (4)** Seminar, four hours. Preparation: at least one course from 246, 272, 276, 277, 455. Requisites: courses 200, 260. Content varies from term to term to allow emphasis on specialized topics such as vocabulary control, file design, indexing, classification, text processing, measurement of relevance, evaluation of information systems, and social and policy issues related to information technology and services. Letter grading.

**280. Social Science Research Methodology for Information Studies (4)** Lecture, four hours. Understanding of nature, uses, and practice of research appropriate to information studies. Identification of research problems and design and evaluation of research. Social science quantitative and qualitative methods. Emphasis on inquiry methodology and empirical research. S/U or letter grading.

**281. Historical Methodology of Information Studies (4)** Lecture, four hours. Requisite: course 200. Introduction to historical research as it relates to library and information science. Identification of key primary and secondary source material for writing history in field. Critical analysis of selected histories of various areas in the profession. Problem-oriented approach. Letter grading.

**282. Design as Research Method (4)** Seminar, three and one half hours. Theories, principles, and application of design as methods for discovery, exploration, and evaluation of user requirements, functionality, values, and system structure. S/U or letter grading.

**285. Oral History Principles and Practice (4)** Seminar, three and one half hours. Oral history is structured practice of recording and preserving first-hand information, and making it available to others. Study covers principles and practice of oral history, with strong focus on ethics of recording life stories for long-term preservation and public access. Overview of how oral histories have been collected and disseminated. Focus on best practices for digital audio and video oral history recordings, in both in-person and remote scenarios. Students conduct and process one oral history interview. Students have opportunity to engage with open-source digital oral history collections to review challenges and opportunities of dissemination strategies such as exhibits, publications, and social media campaigns. S/U or letter grading.

**287. Ethnographic Research Methods (4)** Seminar, three and one half hours. Introduction to ethnographic research with focus on theory; techniques of engagement (fieldwork, participant observation, interviewing, textual/visual analysis, focus groups, etc.); and analysis and presentation of data. Critical examination of aspects and approaches to doing ethnography, especially in library and information science institutions or organizations; and uses of ethnography in information research. Hands-on exploration of particular methods for gathering, analysis, and presentation of ethnographic material. S/U or letter grading.

**288. Research Apprenticeship Course. (2 to 4)** Seminar, two hours. Use of mentorship model of training graduate students in information studies, with focus on development of graduate student research topics. Assignment of common readings related to these topics; students have opportunity to offer and receive feedback. May be repeated for credit. S/U grading.

**289. Seminar: Special Issues in Information Studies (4)** Seminar, three and one half hours. Identification, analysis, and discussion of critical intellectual, social, and technological issues facing the profession. Topics may include (but not limited to) expert systems, literacy, electronic networks, youth at risk, information literacy, historical bibliography, preservation of electronic media, etc. May be repeated with topic change. Letter grading.

**290. Research Seminar: Information Studies. (1 to 2)** Seminar, one to two hours. Designed for PhD students. Emphasis on recent contributions to theory, research, and methodology. May be repeated for credit. S/U grading.

**291A. Doctoral Seminar: Theoretical Traditions in Information Studies (4)** Seminar, four hours. Nature of information studies—ontological, epistemological, and ethical accounts of information and of information arts and sciences. Conceptions, theories, and models of information; information-related artifacts, agents, contexts, institutions, practices, properties, values, and related

phenomena. Interdisciplinary context—subfields of information studies and cognate disciplines. Frameworks for theory construction, such as critical theory, discourse analysis, hermeneutics, phenomenology, semiotics, social epistemology. Letter grading.

**291B. Special Topics in Theory of Information Studies (4)** Seminar, four hours. Topics include information and evidence—record-keeping and memory-making, personal and community identity, accountability and trust. Information and design—design and implementation of information systems and services, information aesthetics. Information retrieval and knowledge organization. Information seeking, access, and use—contexts, techniques, needs, barriers. Information and power—groups, ideologies, identities, structures. Information and value—information ethics, evaluation of information services. Information policy and law—processes, institutions, players, stakes. Information institutions and professions—domains, ecologies, cultures, communities. Economics, geography, history, philosophy, politics, sociology of information. Letter grading.

**291C. Special Topics in Theory of Information Studies (4)** Seminar, four hours. Enforced requisite: course 291A. Topics include information and evidence—record-keeping and memory-making, personal and community identity, accountability and trust. Information and design—design and implementation of information systems and services, information aesthetics. Information retrieval and knowledge organization. Information seeking, access, and use—contexts, techniques, needs, barriers. Information and power—groups, ideologies, identities, structures. Information and value—information ethics, evaluation of information services. Information policy and law—processes, institutions, players, stakes. Information institutions and professions—domains, ecologies, cultures, communities. Economics, geography, history, philosophy, politics, sociology of information. Letter grading.

**298A. Doctoral Seminar: Research Methods and Design (4)** Seminar, four hours. Survey of quantitative, qualitative, and historical research designs. Ethical issues; conceptualization and measurement; indexes, scales, and sampling; experimental, survey, field, and evaluation research; data analysis. Letter grading.

**298B. Special Topics in Methodology of Information Studies (4)** Seminar, four hours. Topics include anthropological fieldwork methods, archival methodology, bibliographical studies, textual analysis, discourse analysis, historical methods, information visualization, network analysis—bibliometrics, informetrics, scientometrics, social network analysis. Letter grading.

**298C. Special Topics in Methodology of Information Studies (4)** Seminar, four hours. Enforced requisite: course 298A. Topics include anthropological fieldwork methods, archival methodology, bibliographical studies, textual analysis, discourse analysis, historical methods, information visualization, network analysis—bibliometrics, informetrics, scientometrics, social network analysis. Letter grading.

**400. Professional Development and Portfolio Design. (2 to 4)** Lecture, two hours; discussion, two hours. Preparation: completion of information studies core courses. Drawing on literature from many fields, exploration of issues related to professional development, such as career planning, continuing education, mentoring, and reflective practice; students also engage in process of guided portfolio design for MLIS degree. S/U grading.

**410. Management Theory and Practice for Information Professionals (4)** Lecture, two hours; discussion, two hours. Principles and practice of management in all types of organizations where information professionals work. Letter grading.

**422. College, University, and Research Libraries (4)** Lecture, four hours. Organization, administration, collections, facilities, finances, and problems of college and university libraries and their relationships within institutions of which they are part. Functions of research libraries and work of their staffs in serving scholars. Letter grading.

**423. Public Libraries (4)** Lecture, four hours. Government, organization, and administration of municipal, county, and regional public libraries; developments in changing patterns of public library service. S/U or letter grading.

**424. Storytelling (4)** Lecture, two hours; demonstration, two hours. Theory and practice of telling stories to children and adults in public and school libraries. S/U grading.

**425. Library Services and Programs for Children (4)** Lecture, two hours; discussion, two hours. Theory and practice of service to children in public libraries. Overview of professional library service to children aged 14 and under; provides opportunities for students to gain experience in particular skills needed to provide that service. Letter grading.

**426. Young Adult Literature (4)** Lecture, four hours. Overview of literature which is of interest to young adults (seventh grade and above). Discussion of special problems in working with young people and psychology of teenagers. S/U or letter grading.

**427. Young Adult Services (4)** Lecture, 90 minutes; discussion, two hours. Theory and practice of service to teens and tweens in libraries. Overview of professional library service to youth aged 11 and over; opportunities for students to gain experience in particular skills needed to provide that service. Discussion of special challenges in working with young people and psychology of teenagers. S/U or letter grading.

**430. Library Collection Development (4)** Lecture, three and one half hours. Background of publishing and book trade from digital to antiquarian pertinent to development of collections in public, school, academic, and special libraries. Theory and practice of collection development and management, including evaluation of library user needs and assessments of collections. Organization and administration of acquisition and collection development departments. Letter grading.

**431. Archives, Records, and Memory (4)** Lecture, four hours. Overview of historical and evolving conceptual foundations, major professional institutions, key practices, and contemporary issues and concerns of archival studies and American archival profession, as well as other fields interested in archives, records, and memory. S/U or letter grading.

**432. Issues and Problems in Preservation of Heritage Materials (4)** Lecture, six hours. Introduction to fields of library conservation and preservation, with emphasis on preservation administration. Letter grading.

**433. Community-Based Archiving (4)** Lecture, three and one half hours. Builds on student understanding of and experience working with communities on development of practical strategies for documenting their activities; managing, collecting, and preserving their records and other historical and cultural materials; and undertaking community-centric collaborative research. Students required to reflect critically on questions about definition, community memory and recordkeeping practices, motivations, positionality and politics, voice, ethics, advocacy, funding and long-term sustainability, ownership, access and use, technological implementation, and collaborations. Letter grading.

**434. Archival Use and Users (4)** Lecture, three and one half hours. Requisite: course 431. Examination of who uses archives and why, with ultimate goal of creating ways to better understand and meet needs of these users as well as engage new audiences in archival use. While archivists have traditionally conceived of their users as academic researchers, more thorough investigation expands this conception of users to include genealogists, artists, K-12 students and educators, families of victims of human rights abuse, community members, and members of general public. Methods for studying users, ways to conduct outreach to target user groups, and ways in which archivists can engage general public. Letter grading.

**438A. Seminar: Advanced Issues in Archival Science—Archival Appraisal (4)** Seminar, four hours. Requisite: course 431. Evaluation and examination of contributions of key figures in development of archival appraisal theory; identification and evaluation of distinct movements in archival appraisal; identification of cultural, political, sociological, and technological movements that can have impact on appraisal methodologies. Letter grading.

**438B. Seminar: Advanced Issues in Archival Science—Archival Description and Access Systems (4)** Seminar, four hours. Requisite: course 431. Exploration of history of archival description and access systems in the U.S. and their development since World War II; data collection; access tools and implications of these issues in development of online archival access systems. Letter grading.

**439. Seminar: Special Collections (4)** Seminar, two hours; discussion, 90 minutes. Students work with special collections materials on one focused theme or topic and have to think through research aspects of exhibit or symposium or collection assessment and then create well-focused and curated agenda for presentation, exhibition, or preservation of materials. Letter grading.

**461. Descriptive Cataloging (4)** Lecture, four hours. Entry and description of library materials. Constitution, structure, and form of library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application. S/U or letter grading.

**462. Subject Cataloging and Classification (4)** Lecture/discussion, four hours. Requisite: course 461. Overview of major alphabetic-subject and systematic indexing languages and their use in manual and online environments, including theory and application of Library of Congress subject headings and of Dewey decimal and Library of Congress classifications. S/U or letter grading.

**463. Indexing and Thesaurus Construction (4)** Lecture, four hours. Principles of design and methods of construction of thesauri. Evaluation and overview of thesauri used in manual and online environments. Basic professional techniques for indexing variety of types of materials and for preparing informative and indicative abstracts. Letter grading.

**464. Metadata (4)** Lecture, four hours. Introduction to variety of metadata provided for digitized and other electronic information resources. Introductory theory and practice designing and applying metadata. S/U or letter grading.

**480. Introduction to Media Archiving and Preservation (4)** Seminar, four hours. Overview of history, conceptual foundations, policies, institutions, and professional methods that have shaped collections of audiovisual materials from early 20th century to present. Introduction to fundamental archival concepts and key practices, including collection development, appraisal, preservation, restoration, arrangement and description, and critical analysis of their specific application to media collections and materials. Discussion of classical and emergent models for media archive administration, including funding, programming, outreach, access, and reuse; changing role of technology in media creation, collection, and preservation; ethics and community standards; different roles of public, private, and national media archives; and cultural impact of historical and contemporary audiovisual media. Letter grading.

**495. Teaching Assistant Training Seminar (2)** Seminar, two hours. Limited to departmental doctoral students. Preparation for teaching assistant appointments in departmental undergraduate courses. Principles of instructional design and evaluation, curriculum development, instructional technology use, and key teaching issues (diversity, students with disabilities, academic integrity, copyright). S/U grading.

**497. Fieldwork in Libraries or Information Organizations. (4, 8)** Fieldwork, 12 or 24 hours depending on nature and complexity of experience or project. Faculty-directed field experience in approved library, archive, or other information setting. Fieldwork experiences may include opportunities in state, national, and international institutions. S/U grading.

**498. Internship (4)** Discussion, to be arranged. Supervised professional training in a library or information center approved by internship coordinator. Minimum of 120 hours per term. May be repeated twice. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (1 to 8)** Tutorial, to be arranged. Directed special studies in fields of bibliography, librarianship, and information science. Variable conference time depending on nature of study or complexity of research. No more than 8 units may be applied toward course requirement for MLIS degree. S/U grading.

**597. Directed Studies for PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. S/U grading.

**598. MLIS Thesis Research and Writing. (2 to 8)** Tutorial, to be arranged. Designed for graduate library and information science students. Supervised independent research for candidates in MLIS thesis option. S/U grading.

**599. PhD Research and Writing. (2 to 12)** Tutorial, to be arranged. S/U grading.



# Integrative Biology and Physiology

## Physiological Science Courses

### Lower Division

**3. Introduction to Human Physiology (5)** Lecture, three hours; laboratory, two hours. Not open to Physiological Science majors. Courses 3 and 5 may be taken independently, concurrently, or in either sequence. Understanding of human body, its organization from molecular to cellular to tissues and organs, and how component parts function in integrated manner to permit life as we know it. P/NP or letter grading.

**5. Issues in Human Physiology: Diet and Exercise (5)** Lecture, three hours; discussion, 30 minutes; laboratory, 90 minutes. Not open to Physiological Science majors. Basic introduction to principles of human biology, with special emphasis on roles that exercise and nutrition play in health, and prevention and management of such illnesses as hypertension, diabetes, and heart disease. P/NP or letter grading.

**6. The Human Machine: Physiological Processes (4)** Not open to Physiological Science majors. General introduction to human musculoskeletal, cardiovascular, and respiratory systems and their function, with special emphasis on mechanical and physiological aspects of homeostasis and environmental interaction. Application of physical principles in selected areas of biomechanics, hemodynamics, ergonomics, orthopedics, and robotics. P/NP or letter grading.

**7. Science and Food: Physical and Molecular Origins of What We Eat (5)** Lecture, three hours; laboratory, two and one half hours. Preparation: high school chemistry, mathematics, physics. What makes lettuce crispy and some cuts of meat chewier than others? Exploration of origins of food texture and flavor, using concepts in physical sciences to explain macroscopic properties such as elasticity and phase behavior, as well as physiological role of food molecules in plants and animals we eat. Letter grading.

**13. Introduction to Human Anatomy (5)** Lecture, four hours; laboratory, five hours. Not open to Physiological Science majors. Structural survey of human body, including skeletomuscular, nervous, circulatory, respiratory, digestive, and genitourinary systems. Laboratory includes examination of human cadaver specimens. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Introduction to Physiological Science (2)** Lecture, one hour; discussion, one hour. Limited to freshmen/sophomores. Introduction to current topics in physiological science by a team of departmental faculty members. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Experimental Statistics (4)** Lecture, four hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. P/NP or letter grading.

**106. Neurobiology of Bias and Discrimination (4)** (Same as Neuroscience M187 and Psychology M166.) Lecture, four hours. Limited to junior/senior neuroscience, physiological science, and psychology students. Exploration of aspects of mammalian brain function that generate preference, bias, and discrimination. Consideration of research at multiple levels of analysis from genetics to neural circuits to behavior. Discussion of societal implications of these research findings, including their relevance to public policies and criminal justice system. Letter grading.

**107. Systems Anatomy (5)** Lecture, four hours; laboratory, three hours; tutorial, two hours. Requisites: Life Sciences 2 or 7C, and Physics 1A, 5A, or 6A. Students must receive grade of C or better to proceed to next course in series. Systems anatomy focused primarily on human anatomy. Topics include cardiorespiratory, reproductive, nervous, and skeletomuscular systems, with introduction to biomechanical principles. Letter grading.

**108. Head and Neck Anatomy: Evolutionary, Biomechanical, Developmental, and Clinical Approach (4)** Lecture, three hours; laboratory, two hours. Requisite: course 107. Strongly recommended: course 153. Prior to first meeting, students must complete Bloodborne Pathogens training course through UCLA Environment, Health and Safety. Introduction to head and neck anatomy. Dissection of head and neck, with focus on vasculature, innervation, and musculature to put them in three-dimensional context. Coverage of evolutionary, developmental, physiological, and biomechanical aspects of skull, including comparative anatomy of other vertebrate skulls, dental evolution and mechanics, respiratory anatomy, and developmental origins of head structures. Letter grading.

**109. Cellular and Molecular Insights into Cardiovascular Development and Disease (4)** Lecture, three hours; discussion, one hour. Requisite: course 111B. Discussion of cellular and molecular players involved in cardiac morphogenesis, postnatal heart growth, and cardiac regeneration, to better understand emergence of cardiac diseases such as congenital heart disease, coronary artery disease, and atherosclerosis. Use of primary literature to highlight modern genetic tools such as transgenic animal models and sequencing technologies to investigate how various cardiac cell lineages and/or gene perturbations contribute to cardiac pathophysiology such as cardiomyocyte death, cardiac fibrosis, and vascular dysfunction. Letter grading.

**110. How Cancer Co-opts Normal Physiology (4)** Lecture, three hours. Requisites: courses 111A, 111B. Students gain understanding of how cancer-causing mutations co-opt normal physiological processes to promote disease progression. Covers homeostatic challenges induced by cancer and cancer therapies. Heavy focus on how animal models are designed and used to study human cancer. Topics include genetic engineering and preclinical analysis of transgenic mouse models of lung cancer, melanoma, and breast cancer. Classes are mixture of lecture and discussion focused on relevant classical and current literature. Letter grading.

**111A. Foundations in Physiological Science (6)** Lecture, four hours; discussion, two hours. Requisites: course 107, Chemistry 14C or 30A, Life Sciences 7A, 7B, 7C, Physics 1B or 5C or 6B. Students must receive grade of C or better to proceed to next course in series. Introduction to principles of muscular and neural physiology, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neuronal plasticity. Letter grading.

**111B. Foundations in Physiological Science (6)** Lecture, four hours; discussion, two hours. Requisites: course 111A, Chemistry 14D or 30B. Students must receive grade of C or better to proceed to next course in series. Introduction to principles of systems physiology, including endocrinology, transport physiology, and cardiovascular and pulmonary physiology. Letter grading.

**111L. Physiological Science Laboratory (3)** Laboratory, four hours. Requisites: courses 111A and 111B, with grades of C– or better. Required of Physiological Science majors. Designed to illustrate physiological principles studied in courses 111A, 111B. Letter grading.

**120. Kidney: Understanding It from Development to Disease to Therapy (4)** Lecture, three hours. Enforced requisites: courses 111A, 111B. Review of knowledge of basic renal function, with emphasis on broad range of renal diseases and their molecular mechanisms. Introduction to research methods typically employed in studies of kidney and exploration of state-of-art research on kidney repair and regeneration. Letter grading.

**121. Disease Mechanisms and Therapies (5)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 153A, and Life Sciences 2, 3, and 4 or 7A, 7B, and 7C. Designed for junior/senior Biochemistry and life sciences majors. Use of disease mechanisms as pedagogical tools to develop higher-order knowledge of basic scientific concepts. Integration of concepts from genetics, molecular and cell biology, physiology, and biochemistry to create molecular solutions to problem of inherited neuromuscular disease. Letter grading.

**122. Biomedical Technology and Physiology (4)** Lecture, four hours. Requisites: courses 111A, 111B, Life Sciences 2 or 7C, Physics 1A, 1B, and 1C, or 5A, 5B, and 5C, or 6A, 6B, and 6C. Developments in biotechnology and their impact on diagnosis and treatment of disease, basic engineering principles, and designs that lend themselves to deciphering physiological states, and application of new technologies in clinical practice and biomedical research. Letter grading.

**CM123. Neurobiology of Sleep (4)** (Same as Neuroscience CM123.) Lecture, three hours; discussion, one hour. Requisites: courses M101A and M101B or 111A and 111B or consent of instructor. Detailed look into science of sleep. Cellular and molecular mechanisms of falling asleep, many discrete brain structures involved in control of sleep wakefulness, and homeostatic regulation of sleep. How our sleep needs shaped by our evolutionary history, age, and gender. Latest insights into question of function of sleep, critical role sleep plays in memory formation and, close association between sleep and metabolism. Sleep disorders are considered as they provide insights into mechanisms underlying sleep. For background on science of sleep and circadian rhythms, completion of course C126 is highly recommended. Concurrently scheduled with course CM223. Letter grading.

**124. Molecular Biology of Aging (4)** Lecture, three hours. Requisites: Chemistry 153A, Life Sciences 1, 2, 3, 4, and 23L, or 7A, 7B, 7C, and 23L. Discoveries of new science of aging biology, with examination of aging as plastic trait modulated by genes and physiological processes. Discussion of how these findings integrate with both nutritional modulation of lifespan and complex and profound relationship between underlying aging process and diseases of aging. Topics include dietary restriction, mitochondria, insulin/IGF signaling, and link between tumor suppression and organismal aging. Letter grading.

**125. Molecular Systems Biology (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 2, 3, 4, and 23L, or 7A, 7B, 7C, and 23L. Quantitative description of molecular systems that underlie myriad phenotypes in living cells. Topics include various -omics fields and high-throughput technologies, network biology, and synthetic biology. Introductory lectures on molecular biology, emerging bioinformatic approaches, and systems modeling integrated with discussions of their applications in disease-related research. Review of recent literature to gain overall perspectives about new science of systems biology. Letter grading.

**C126. Biological Clocks (4)** Lecture, three hours; discussion, one hour. Requisites: courses 111A and 111B, or M180A and M180B. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within organisms and are called circadian rhythms. Biological basis of these daily rhythms or circadian oscillations. Exploration of molecular, cellular, and system-level organization of these timing systems. Temporal role of these variations in maintaining homeostatic mechanisms of body and impact on nervous system. Concurrently scheduled with course C226. Letter grading.

**C127. Neuroendocrinology of Reproduction (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 111B. Understanding of reproductive neuroendocrinology throughout mammalian lifespan, with emphasis as appropriate on human condition. Discussion of general concepts of endocrine feedback and feed-forward loops, sexual differentiation, and structure and function for components of hypothalamo-pituitary gonadal axis. Exploration of sex differences in physiology and disease. Concurrently scheduled with course C227. Letter grading.

**128. Me, Myself, and Microbes: The Microbiome in Health and Disease (5)** Lecture, four hours; discussion, 90 minutes. Requisites: course 107 or Chemistry 153A, Life Sciences 2 and 3, or 7A, 7B, and 7C. Exploration of host-microbiome interactions in health and disease, drawing upon basic properties for microbial communities, intersections with immunology, metabolism, and neurobiology. Letter grading.

**C130. Sex Differences in Physiology and Disease (4)** Lecture, three hours. Requisites: course 111B, Life Sciences 7A, 7B, 7C. Investigation of biological origins of sex differences in physiology (mostly vertebrate), and susceptibility to disease, including history of development of concepts to define sex, and interface between biological factors and effects of gendered environments. Topics include evolution of sex chromosomes, molecular and environmental determination of gonadal type, dosage compensation, gonadal steroid hormone effects on tissues, physiology of reproduction as it applies to sex differences, interaction of genetic and environmental factors in differentiation of two sexes, defining sex and gender, gendered environments and their influence on physiology, and politics of financial support for research of sex and gender differences in disease. Concurrently scheduled with course C230. Letter grading.

**135. Dynamical Systems Modeling of Physiological Processes (5)** (Same as Neuroscience M135.) Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

**136. Pathophysiology of Cardiovascular Diseases (5)** Lecture, four hours. Requisite: course 111B. Exploration of function of cardiovascular system and how cardiovascular disease develops during the lifespan. Emphasis on molecular and cellular mechanisms that mediate chronic diseases such as atherosclerosis, hypertension, diabetes, obesity, and metabolic syndrome. Includes current clinical interventions for treatment and prevention of cardiovascular disease emphasizing lifestyle modifications. Letter grading.

**138. Neuromuscular Physiology and Adaptation (4)** Prerequisites: course 111B, Chemistry 153A. Cellular responses to acute and chronic exercise and environmental states of neuromuscular system.

**140. Hormones and Behavior in Humans and Other Animals (4)** (Formerly numbered M140.) Lecture, three hours; discussion, one hour. Examination of hormones, and physiology and genetics involved in hormonal processes and function. Interactions among hormonal levels, environmental stimuli, and behavior. Sexual behavior, pregnancy, and lactation, parental behavior, development and emigration, stress, social behavior, dominance relationships, aggression, chemical communication, and reproductive suppression. Critique of primary literature on behavioral endocrinology about humans and other species. Consideration of spectrum of noninvasive to highly invasive endocrine sampling methods, and which types of questions can be answered in laboratory and field, as well as ethics of hormonal studies and their implications for humans and other animals. Letter grading.

**C144. Neural Control of Physiological Systems (4)** Lecture, four hours. Requisite: course 111B or M180B. Role of central nervous system in control of respiration, circulation, sexual function, and bladder control. Material for each section to be developed by combination of lecture and open discussion. Concurrently scheduled with course C244. Letter grading.

**145. Neural Mechanisms Controlling Movement (5)** (Same as Neuroscience M145.) Lecture, four hours. Requisite: course 111A or M180A or Neuroscience M101A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

**146. Principles of Nervous System Development (5)** Lecture, three hours; discussion, two hours. Requisites: courses 107 (or Neuroscience 102) and 111A (or M180A). Examination of construction of vertebrate nervous system as series of integrated steps beginning with several embryonic cells and culminating as complex highly ordered system. Topics include neurulation, regionalization, neurogenesis, migration, axonal outgrowth, and synapse formation. Letter grading.

**147. Neurobiology of Learning and Memory (5)** Lecture, four hours; discussion, one hour. Requisite: course 111A or M180A. Changes in central nervous system that accompany learning, with emphasis on cellular mechanisms.

**148. Physiological Regulation of Metabolism and Nutrient Sensing (4)** Lecture, two and one half hours; discussion, two hours. Requisite: course 111B. Study of energy metabolism and processing of macronutrients like carbohydrates, lipids, and proteins in mammals. Students gain tools and knowledge for synthesizing new information from advances in nutrition research to add to basic understanding of macronutrient metabolism. Use of clinical case studies to understand how human mutations in metabolic pathways lead to metabolic disorders. Discussion of diabetes, atherosclerosis, glycogen storage disease, inborn errors of metabolism, mitochondrial disorders, and lysosomal storage diseases. Study of how cells sense nutrients and adapt metabolism to unique needs of cells—for example, how cells respond to excess cholesterol. Discussion of mechanisms involved in import, export, and synthesis of nutrients. Use of primary literature to analyze primary research related to topics covered in lectures. Letter grading.

**149. Systems Biology and Mechanisms of Major Cardiometabolic Diseases (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 7A, 7B, 7C. Strongly recommended: Chemistry 153A. Designed for juniors/seniors. Integration of principles gained through basic science curriculum with modern systems biology concepts, approaches, and presently understood mechanisms of selected human cardiovascular disease, diabetes, and obesity. Letter grading.

**C150. Musculoskeletal Mechanics (5)** Lecture, three hours. Requisite: course 111B. Introduction to biomechanical analysis of human musculoskeletal system. Examination of cinematographic, force platform, and digital computer techniques to characterize and evaluate kinematic and kinetic components of movement. Topics include biostatics, biodynamics, and modeling. Concurrently scheduled with course C250B. Letter grading.

**C152. Musculoskeletal Anatomy, Physiology, and Biomechanics (5)** Lecture, three hours. Requisite: course 111A. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony tissues examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology, and repair mechanisms analyzed in conjunction with musculoskeletal injuries and effects of exercise. Concurrently scheduled with course C252.

**153. Dissection Anatomy (5)** Lecture, two hours; laboratory, six hours. Requisite: course 107. Prior to first meeting, students must complete Bloodborne Pathogens training course through UCLA Environment, Health and Safety. Study and dissection of upper and lower extremities of human cadavers; dissection of thorax and abdomen limited to musculature and neurovascular supply. Letter grading.

**154. Cellular Communication and Regulation of Physiological Processes (4)** Lecture, three hours. Limited to juniors/seniors. Signal transduction concepts, with focus on role of receptors, G proteins, and intracellular messengers such as cyclic AMP and calcium. Integration of these concepts with variety of physiological processes, including stimulus-secretion coupling, vascular smooth muscle contraction, and role of growth factors in cell proliferation. Contemporary scientific research articles used as basis for material presented. Students required to present journal article for discussion. Letter grading.

**155. Development and Structure of Musculoskeletal System (4)** Requisite: course 111B. Development, histology, cell biology, and biochemistry of musculoskeletal soft tissues. Integration of knowledge of muscle and connective tissue structure and function on each of these levels to understand organization and physiological behavior of the intact system.

**156. Molecular Mechanisms and Therapies for Muscular Dystrophy (4)** Lecture, three hours; discussion, one hour. Enforced requisites: course 111A (may be taken concurrently), Life Sciences 4 with grade of B or better. Causes and pathogenesis of Duchenne muscular dystrophy and some fundamental scientific findings using original scientific research. Exploration of therapies aimed at individual stages of pathogenetic disease as method to develop critical expert-like thinking skills. Lectures based on experiments from primary scientific literature, and students expected to understand genetic and phenotypic animal models of muscular dystrophy, to design experiments, and to predict outcomes from research data. Letter grading.

**165. Comparative Animal Physiology (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, and 23L, or 7A, 7B, 7C, and 23L. Physiological response and function at molecular, cellular, system, and whole organism levels of variety of animals to range of environmental conditions. Major topics include neural and muscular structure and function, hormones, gas exchange, energetics, and thermoregulation. Examination of wide variety of vertebrates and invertebrates to understand how animals solve physiological challenges presented by physical environment. Letter grading.

**166. Animal Physiology (6)** Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14B and 14BL, or 20B and 30AL, 153A, Life Sciences 7A, 7B, 7C, Physics 1C and 4BL, or 5C. Not open for credit to students with credit for Ecology and Evolutionary Biology 170 or to Physiological Science majors. Introduction to physiological principles, with emphasis on organ systems and intact organisms. Letter grading.

**167. Physiology of Nutrition (4)** Lecture, four hours. Enforced requisites: Chemistry 14A, 14B, 14C, and 14D, or 20A, 20B, 30A, and 30B. Limited to Physiological Science majors and Food Studies minors. Topics include physiological adaptation to starvation and physiological responses to oxidants/antioxidants, vitamins, minerals, photochemicals, and their relationship to common chronic diseases and physiology of fuel utilization during aerobic and anaerobic exercise. Letter grading.

**C168. Professional and Career Development for Pre-Health Students (2)** Seminar, one hour. Exploration of employment and career opportunities available to physiological sciences majors. Different speakers from health care and biotech industries give short presentations to describe their career paths and explain how their education helped them become successful. Speakers include physicians, dentists, pharmacists, nurses, and more. Provides guidance and support through application processes for professional health schools such as medical school. Students begin building a professional dossier with a personal statement. Concurrently scheduled with course C268. P/NP grading.

**171. Variable Topics Research Seminars: Contemporary Biology (2)** (Same as Neurobiology M171.) Seminar, two hours. Limited to undergraduate fellows in Integrated and Interdisciplinary Undergraduate Research Program. Presentations of scientific data from primary research articles and from students' own research. May be repeated for credit. P/NP grading.

**173. Anatomy and Physiology of Sense Organs (4)** Lecture, three hours; discussion, one hour. Requisites: courses 111A, or M180A and M180B, or Molecular, Cell, and Developmental Biology M175A and M175B. Structure and

function of sense organs. Adoption of quantitative and comparative approach to provide insight into evolution of sense organs in both invertebrates and vertebrates. Letter grading.

**174. Cell Biophysics in Physiology and Disease (5)** Lecture, three hours; discussion, two hours. Requisites: Chemistry 153A, Life Sciences 2, 3, 4, and 23L, or 7A, 7B, 7C, and 23L, Physics 5A, 5B, and 5C, or 6A, 6B, and 6C. Search for information in biological research has traditionally focused on genes and biochemical pathways. While physical aspects of cell biology are critical in physiology and disease, they have received so much less attention in research. For example, mechanical properties of cells determine how physical forces alter gene expression and can signal transformation in physiological state of cells, such as in malignant transformation. Exploration of cell biophysics in health and disease from basic physical principles that underlie structure and organization of cytoskeleton to role of cell deformability in diseases such as cancer. Use of articles from primary literature regarding current research. Letter grading.

**175. Why Fido Can't Speak: Biological Evolution of Language (5)** Lecture, three hours; discussion, one hour. Requisite: course 111A or Neuroscience M101A. Homo sapiens are only species currently on planet to possess language. Exploration of whether other species possess potential building blocks for language. Topics range from examination of how bees and ants signal about food sources to whether structured songs of birds, whales, and monkeys contain compositional meaning. Topics intersect with those in fields of anthropology, biopsychology, linguistics, molecular genetics, neuroscience, and physiology. Letter grading.

**176. Auditory Neuroscience of Speech Perception and Vocal Communication (4)** (Same as Neuroscience M176.) Lecture, two and one half hours; discussion, 90 minutes. Requisite: course 107 or Neuroscience M101A. Interdisciplinary approach to understanding how humans and other animals communicate emotion and meaning using sound. Weekly research topics in disciplines of systems neuroscience, cognitive neuroscience, psychophysics, and psycholinguistics. Emphasis on fundamental principles in neurophysiology, neuroanatomy, neuroimaging, psychology, and neurology. Letter grading.

**177. Neuroethology (5)** Lecture, four hours; discussion, two hours. Requisite: course 111A or M180A. Physical properties of animal signals and physiological mechanisms underlying their generation. Topics include classical neuroethological models: acoustic and vibration communication in vertebrates, sound localization in owls, electrosensing and electrocommunication in electric fish, and neurobiology of birdsong. Letter grading.

**178. Quantitative Regulatory Biology and Signal Transduction (4)** (Formerly numbered 178.) (Same as Computational and Systems Biology M178 and Microbiology M178.) Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 7A, 7B, 7C, 30A, 30B. Introduction to key biological regulatory circuit motifs and systems biology concepts that are critical to understanding how cellular responses are controlled. Letter grading.

**180A. Neuroscience: From Molecules to Mind—Cellular and Systems Neuroscience (5)** (Same as Molecular, Cell, and Developmental Biology M175A, Neuroscience M101A, and Psychology M117A.) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 7C, Physics 1B or 1BH or 5C or 6B. Students must receive grade of C– or better to proceed to next course in series. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

**180B. Neuroscience: From Molecules to Mind—Molecular and Developmental Neuroscience (5)** (Same as Neuroscience M101B, Molecular, Cell, and Developmental Biology M175B, and Psychology M117B.) Lecture, four hours; discussion, 90 minutes. Requisites: course M180A (with grade of C– or better), Life Sciences 7C. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptics transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

**180C. Neuroscience: From Molecules to Mind—Behavioral and Cognitive Neuroscience (5)** (Same as Neuroscience M101C, Molecular, Cell, and Developmental Biology M175C, and Psychology M117C.) Lecture, four hours; discussion, 90 minutes. Requisite: course M180A with grade of C– or better. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

**187A. Seeing Brain in Action (2)** Seminar, two hours. Enforced requisites: courses 111A and 111B (or Neuroscience M101A and M101B). Introduction to latest technical approaches and conceptual advances in one preeminent subfield of neuroscience—live functional imaging. Students provided with critiqued scientific presentation experience and complete one exercise in scientific writing and peer review. Letter grading.

**187B. From Cell to Circuit (2)** Seminar, two hours. Enforced requisites: courses 111A and 111B (or Neuroscience M101A and M101B), 187A. Introduction to latest technical approaches and conceptual advances in one pre-eminent subfield of neuroscience—specification of neural circuits. Students provided with critiqued scientific presentation experience and complete one exercise in scientific writing and peer review. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Physiology (2)** Seminar, two hours. Enforced requisite: course 111A. Focused reading in single subdiscipline of physiology, with focus on critical analysis of primary research literature. Emphasis on understanding methods for research in physiology and interpretation of experimental results, and how they bear on concepts of physiology. Development of culminating paper. May be repeated for credit. Letter grading.

**191H. Honors Seminars: Current Topics in Physiology (4)** Seminar, four hours. Requisites or corequisites: courses 198A, 198B. Limited to neuroscience and physiological science honors program students. Designed for juniors/seniors and required of departmental honors students. Presentation of primary paper from physiology literature. Reading and critical evaluation of current research literature. Presentation of student laboratory research hypothesis, approach, and results in form of oral and poster presentations. Letter grading.

**192. Practicum in Systems Anatomy for Undergraduate Assistants (3)** Seminar, two hours; additional hours in laboratory setting, to be arranged. Requisite: course 107. Limited to juniors/seniors. Training and supervised practicum in systems anatomy for undergraduate assistants. Consult Undergraduate Office for further information. May not be applied toward elective requirements and may not be repeated for credit. Departmental application required. P/NP or letter grading.

**192A. Introduction to Collaborative Learning Theory and Practice (1)** Seminar, one hour. Preparation: at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. P/NP or letter grading.

**192B. Methods and Application of Collaborative Learning Theory in Physical Sciences. (2 to 4)** Seminar, two hours; laboratory, six hours. Requisites: course (may be taken concurrently), and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated four times for credit. P/NP or letter grading.

**193. Journal Club Seminars: Physiological Science (1)** Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in field. May be repeated for credit. P/NP grading.

**194A. Research Group Seminars: Physiological Science (2)** Seminar, two hours. Required of undergraduate students in research traineeships such as MARC and UC Leads programs. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

**194B. Research Group Seminars: Physiological Science (1)** Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199. Limited to juniors/seniors. Involvement in weekly laboratory research group meetings to encourage student participation in research and to stimulate progress in specific research areas. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

**195. Field Studies in Physiological Science (4)** Tutorial, one hour; fieldwork, eight hours. Limited to seniors. Supervised field studies in specific careers related to physiological science. May not be repeated for credit and may not be applied toward elective requirements for major. Individual contract with supervising faculty member required. P/NP grading.

**196. Research Apprenticeship in Physiological Science. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit; consult department. Individual contract required. P/NP grading.

**198A. Honors Research in Physiological Science (4)** Tutorial, 12 hours. Requisites: courses 111A, 111B, 193 (193 may be taken concurrently). Limited to junior/senior physiological science honors program students. Directed independent research for departmental honors with faculty member, involving definition of research topic and extensive reading and research in field of proposed honors thesis. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Physiological Science (4)** Tutorial, 12 hours. Requisites: courses 193 (may be taken concurrently), 198A. Limited to junior/senior physiological science honors program students. Continued reading and research that culminate in final honors thesis. May be repeated for credit. Individual contract required. Letter grading.

**198C. Advanced Studies for Honors Research in Physiological Science (4)** Tutorial, 12 hours. Requisite: course 198B. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Additional course to provide further research opportunities for departmental honors students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Physiological Science. (2 to 4)** Tutorial, 12 hours. Requisites: courses 111A, 111B, 193 (193 may be taken concurrently). Limited to Physiological Science majors with advanced junior standing and 3.0 grade-point average in major, or seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. Course application must be submitted to undergraduate affairs chair during first week of classes. Eight units of course 199 may be applied toward elective requirements for major. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Advanced Experimental Statistics (4)** Lecture, four hours; laboratory, one hour. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. S/U or letter grading.

**202. Cellular Neurophysiology (4)** (Same as Neurobiology M200F and Neuroscience M202.) Lecture, three hours; discussion, two hours. Requisites: courses 111A (or M180A or Physics 5C), 166. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

**210. Molecular and Cellular Mechanisms of Neural Integration (5)** (Same as Neuroscience M230 and Physiology M210.) Lecture, four hours; discussion, one hour. Requisite: Neuroscience M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

**211. Exercise Cardiovascular Physiology (4)** Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

**215. Molecular and Cellular Foundations of Physiology (5)** Lecture, three hours; discussion, two hours. Application of molecular and cellular approaches to systems level questions. Basic foundation for study of major physiological systems, with emphasis on levels of organization from molecular to macroscopic. Letter grading.

**CM223. Neurobiology of Sleep (4)** (Same as Neuroscience CM223.) Lecture, three hours; discussion, one hour. Detailed look into science of sleep. Cellular and molecular mechanisms of falling asleep, many discrete brain structures involved in control of sleep wakefulness, and homeostatic regulation of sleep. How our sleep needs shaped by our evolutionary history, age, and gender. Latest insights into question of function of sleep, critical role sleep plays in memory formation and, close association between sleep and metabolism. Sleep disorders are considered as they provide insights into mechanisms underlying sleep. For background on science of sleep and circadian rhythms, completion of course C126 is highly recommended. Concurrently scheduled with course CM123. Letter grading.

**C226. Biological Clocks (4)** Lecture, three hours; discussion, one hour. Requisites: courses 111A and 111B, or M180A and M180B. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within organisms and are called circadian rhythms. Biological basis of these daily rhythms or circadian oscillations. Exploration of molecular, cellular, and system-level organization of these timing systems. Temporal role of these variations in maintaining homeostatic mechanisms of body and impact on nervous system. Concurrently scheduled with course C126. Letter grading.

**C227. Neuroendocrinology of Reproduction (4)** (Formerly numbered CM227.) Lecture, three hours; discussion, one hour. Enforced requisite: course 111B. Understanding of reproductive neuroendocrinology throughout mammalian lifespan, with emphasis as appropriate on human condition. Discussion of general concepts of endocrine feedback and feed-forward loops, sexual differentiation, and structure and function for components of hypothalamo-pituitary gonadal axis. Exploration of sex differences in physiology and disease. Concurrently scheduled with course C127. Letter grading.

**C230. Sex Differences in Physiology and Disease (4)** Lecture, three hours. Requisites: course 111B, Life Sciences 7A, 7B, 7C. Investigation of biological origins of sex differences in physiology (mostly vertebrate), and susceptibility to disease, including history of development of concepts to define sex, and interface between biological factors and effects of gendered environments. Topics include evolution of sex chromosomes, molecular and environmental determination of gonadal type, dosage compensation, gonadal steroid hormone effects on tissues, physiology of reproduction as it applies to sex differences, interaction of genetic and environmental factors in differentiation of two sexes, defining sex and gender, gendered environments and their influence on physiology, and politics of financial support for research of sex and gender differences in disease. Concurrently scheduled with course C130. Letter grading.

**235. Advanced Dynamical Systems Modeling of Physiological Processes (5)** Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

**241. Neural Plasticity and Repair (4)** Lecture, four hours. Preparation: basic neuroscience background. Progress in basic and clinical neuroscience provides new insight to understand mechanisms of cell repair and strategies to promote neural healing. Focus on physiological, molecular, and anatomical basis governing repair processes in brain and spinal cord and their clinical implications. Letter grading.

**C244. Neural Control of Physiological Systems (4)** Lecture, four hours. Requisite: course 111B or M180B. Role of central nervous system in control of respiration, circulation, sexual function, and bladder control. Material for each section to be developed by combination of lecture and open discussion. Concurrently scheduled with course C144. Letter grading.

**245. Neural Mechanisms Controlling Movement (5)** Lecture, four hours. Requisite: course 111A or M180A or Neuroscience M101A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

**250A. Muscle Dynamics (4)** Lecture, four hours. Integrated study of electrical and dynamic parameters of muscle-action, including topics in length-tension and force-velocity interrelationships; critical analysis of electromyographic and digital computer techniques. Letter grading.

**C250B. Musculoskeletal Mechanics (5)** Lecture, three hours. Requisites: course 107, Physics 6A. Introduction to biomechanical analysis of human musculoskeletal system. Examination of cinematographic, force platform, and digital computer techniques to characterize and evaluate kinematic and kinetic components of movement. Topics include biostatics, biodynamics, and modeling. Concurrently scheduled with course C150. Letter grading.

**C252. Musculoskeletal Anatomy, Physiology, and Biomechanics (5)** Lecture, three hours. Requisite: course 111A. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony tissues examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology, and repair mechanisms analyzed in conjunction with musculoskeletal injuries and effects of exercise. Concurrently scheduled with course C152.

**255. Seminar: Neural and Behavioral Endocrinology (2)** (Same as Neurobiology M255 and Psychology M294.) Lecture, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

**260. Neuromuscular Factors in Movement Regulation (4)** Lecture, four hours. Requisite: course 138. Interaction of neural and muscular factors in regulation of muscle fiber properties and importance of these properties in neural strategies of movement regulation. S/U or letter grading.

**263. Neuronal Mechanisms Controlling Rhythmic Movements (4)** Lecture, four hours. Requisite: course M145. Advanced topics on brainstem mechanisms responsible for controlling cyclic and stereotypic movements such as mastication and locomotion. Emphasis on cellular neurophysiology and interaction between neuronal networks. Introduction to primary literature and techniques used in these areas. Students expected to critically evaluate data and conclusions drawn. S/U or letter grading.

**C268. Professional and Career Development for Pre-Health Students (2)** Seminar, one hour. Exploration of employment and career opportunities available to physiological sciences majors. Different speakers from health care and biotech industries give short presentations to describe their career paths and explain how their education helped them become successful. Speakers include physicians, dentists, pharmacists, nurses, and more. Provides guidance and support through application processes for professional health schools such as medical school. Students begin building a professional dossier with a personal statement. Concurrently scheduled with course C168. S/U grading.

**270A. Modern Concepts in Physiology (4)** Lecture, two hours; discussion, two hours. Highly recommended requisite or corequisite: course 111A. Study and evaluation of primary research literature. Study of foundations of modern techniques in physiology research, analysis of research design. Foundation for experimental study of principles of muscular and neural physiology and cellular and systems neuroscience, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neural plasticity. Letter grading.

**270B. Modern Concepts in Physiology (4)** Lecture, two hours; discussion, two hours. Highly recommended requisite or corequisite: course 111B. Study and evaluation of primary research literature. Study of foundations of modern techniques in physiology research, analysis of research design. Foundation for experimental study of principles of systems physiology, including endocrinology, transport physiology, and neural, cardiovascular, and pulmonary physiology. Letter grading.

**272. Neuroimaging and Brain Mapping (4)** (Same as Neuroscience CM272 and Psychology M213.) Lecture, three hours. Requisites: course M202, Neuroscience M201. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Letter grading.

**289A. Honing Your Skills as Researcher in Integrative Biology and Physiology (2)** Seminar, one hour. Limited to graduate students in Physiological Science master's program. Scientific method and analytical tools of research in physiology and biology; evaluation of research literature in physiology; scientific communication—written and oral presentations; scientific ethics; and professional development—writing curriculum vitae (CV) and cover letter. Letter grading.

**289B. Honing Your Skills as Researcher in Integrative Biology and Physiology (3)** Seminar, one hour. Requisite: course 289A. Limited to graduate students in Physiological Science master's program. Scientific method and analytical tools of research in physiology and biology; evaluation of research literature in physiology; scientific communication—written and oral presentations; scientific ethics; and professional development—writing curriculum vitae (CV) and cover letter. Letter grading.

**290. Seminar: Comparative Physiology (2)** (Same as Ecology and Evolutionary Biology M290.) Seminar, two and one half hours. Discussion of specific topics in comparative physiology of animals. Topics vary from year to year, with emphasis on systems physiology, neuroethology, or behavioral physiology. S/U or letter grading.

**291A. Seminar: Cardiovascular Function and Adaptation. (2 to 4)** Seminar, two to four hours. Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar. Letter grading.

**291B. Seminar: Cardiovascular Function and Adaptation. (2 to 4)** Seminar, two to four hours. Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar. Letter grading.

**291C. Seminar: Cardiovascular Function and Adaptation. (2 to 4)** Seminar, two to four hours. Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar. Letter grading.

**292. Evolution and Development of Auditory System. (2 to 4)** Seminar, two hours. Discussion of specific topics related to evolution, embryology, morphogenesis, cytodifferentiation, and onset of function of auditory system, with special attention to centrifugal pathways. Emphasis on primary literature sources as well as current methodological approaches. Two-hour seminar presentation required for two units; seminar paper and two-hour seminar presentation required for four units. S/U or letter grading.

**293A. Seminar: Musculoskeletal Function and Adaptation. (2 to 4)** Seminar, one hour. Requisites: courses 138, 260. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar. S/U or letter grading.

**293B. Seminar: Musculoskeletal Function and Adaptation. (2 to 4)** Seminar, one hour. Requisites: courses 138, 260. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar. S/U or letter grading.

**293C. Seminar: Musculoskeletal Function and Adaptation. (2 to 4)** Seminar, one hour. Requisites: courses 138, 260. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar. S/U or letter grading.

**294. Recent Advances in Neurophysiology (1)** Seminar, one hour. Requisite: Life Sciences 2 or undergraduate degree in science. Critical examination and discussion of recent data and publications that focus on synaptic function. Student presentations, readings, and participation in discussions required. S/U grading.

**295A. Seminar: Cellular Neuroscience. (2 to 4)** Seminar, two to four hours. Requisite: course M202. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar. S/U or letter grading.

**295B. Seminar: Cellular Neuroscience. (2 to 4)** Seminar, two to four hours. Requisite: course M202. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar. S/U or letter grading.

**295C. Seminar: Cellular Neuroscience. (2 to 4)** Seminar, two to four hours. Requisite: course M202. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar. S/U or letter grading.

**296. Research Seminar: Physiological Science (2)** Review of literature, discussion of original research, and analysis of current topics in physiological science. May not be applied toward MS or PhD course requirements. May be repeated for credit. S/U grading.

**297. Seminar: Muscle Cell Biology. (2 to 4)** Seminar, two hours. Selected topics in muscle cell biology. Students required to present two-hour seminar. May be repeated for credit.

**298. Seminar: Nervous System Development. (1 to 2)** Seminar, two hours. Selected topics in developmental neurobiology, such as neuronal migration, axonal guidance, gene expression, and synaptogenesis. Weekly primary literature student presentations. One-hour seminar presentation on assigned weekly reading required of all students; students enrolled for 2 units must also complete written analysis of additional primary literature papers. May be repeated for credit. S/U or letter grading.

**495. In-Service Practicum for Teaching Assistants in Physiological Science (2)** Seminar, to be arranged. Required of all teaching assistants. Supervised practicum in teaching laboratory courses in physiological science; material preparation and use of teaching aids. May not be applied toward degree requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Individual Studies for Graduate Students. (2 to 8)** Tutorial, to be arranged. To enroll for letter grade, petition signed by faculty sponsor, graduate adviser, and graduate affairs committee chair must be submitted prior to end of second week of class. Eight units may be applied toward degree requirements for MS or PhD degree, provided that students enroll in two different 4-unit 596 courses in different laboratories under supervision of different mentors. Term paper required for letter grading. S/U or letter grading.

**597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations (2 to 16)** Tutorial, to be arranged with faculty member serving as student's comprehensive examination chair or PhD committee chair. May not be applied toward MS or PhD course requirements. May be repeated as necessary. S/U grading.

**598. Research for and Preparation of MS Thesis. (2 to 16)** Tutorial, to be arranged with faculty member serving as student's thesis committee chair. May not be applied toward MS course requirements. May be repeated as necessary. S/U grading.

**599. Research for and/or Preparation of PhD Dissertation. (2 to 16)** Tutorial, to be arranged. May not be applied toward PhD course requirements. May be repeated as necessary. S/U grading.

# International and Area Studies

## International and Area Studies Courses

### Lower Division

**1. Introduction to International and Area Studies (5)** Lecture, three hours; discussion, one hour. Introduction to international and area studies from interdisciplinary framework, covering themes related to international politics and markets, as well as international societies and cultures, to illuminate and clarify profoundly international character of world we live in and to introduce set of contemporary issues and challenges that cross borders and affect every region of world. P/NP or letter grading.

**6A. Elementary Amharic (4)** (Same as African American Studies M9A.) Lecture, five hours. Course M6A is requisite to M6B, which is requisite to M6C. Introduction to Amharic, Semitic language that is official language of Ethiopia. Coverage of basic Amharic grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**6B. Elementary Amharic (4)** (Same as African American Studies M9B.) Lecture, five hours. Requisite: course M6A. Introduction to Amharic, Semitic language that is official language of Ethiopia. Coverage of basic Amharic grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**6C. Elementary Amharic (4)** (Same as African American Studies M9C.) Lecture, five hours. Requisite: course M6B. Introduction to Amharic, Semitic language that is official language of Ethiopia. Coverage of basic Amharic grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**7A. Elementary Yoruba (4)** (Same as African American Studies M7A.) Lecture, five hours. Course M7A is requisite to M7B, which is requisite to M7C. Introduction to Yoruba, one of major languages of West Africa, which is spoken widely throughout southwest Nigeria, Benin, and Togo. Coverage of basic Yoruba grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**7B. Elementary Yoruba (4)** (Same as African American Studies M7B.) Lecture, five hours. Requisite: course M7A. Introduction to Yoruba, one of major languages of West Africa, which is spoken widely throughout southwest Nigeria, Benin, and Togo. Coverage of basic Yoruba grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**7C. Elementary Yoruba (4)** (Same as African American Studies M7C.) Lecture, five hours. Requisite: course M7B. Introduction to Yoruba, one of major languages of West Africa, which is spoken widely throughout southwest Nigeria, Benin, and Togo. Coverage of basic Yoruba grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**8A. Elementary Tigrinya (4)** (Same as African American Studies M8A.) Lecture, five hours. Course M8A is requisite to M8B, which is requisite to M8C. Introduction to Tigrinya, a language spoken in the Horn of Africa, in Eritrea and Ethiopia. Coverage of basic Tigrinya grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**8B. Elementary Tigrinya (4)** (Same as African American Studies M8B.) Lecture, five hours. Requisite: course M8A. Introduction to Tigrinya, a language spoken in the Horn of Africa, in Eritrea and Ethiopia. Coverage of basic Tigrinya grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**10. Explorations in International Studies (2)** Lecture, two hours. Exploration of key international events through active learning, designed to develop understanding of international issues and diverse skill set, including persuasive speaking, critical thinking, research skills, problem solving, teamwork, expository writing, and leadership skills. May be repeated for credit without limitation. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**31. Introduction to Southeast Asia (5)** Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern Southeast Asia. P/NP or letter grading.

**33. Introduction to East Asia (5)** Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern East Asia. P/NP or letter grading.

**40. Introduction to Europe (5)** Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern Europe. P/NP or letter grading.

**50. Introduction to Latin America (5)** Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey designed as introduction to modern Latin America. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**110A. Field Studies in International and Area Studies (4)** Seminar, three hours. Exploration of culture, economy, history, and politics of important locations around world. Hands-on experiential programs offered for students participating in UCLA Travel Study Program. Field trips included to gain first-hand experience. May be repeated with topic and/or location change. Offered in summer only. P/NP or letter grading.

**110B. Field Studies in International and Area Studies (4)** Seminar, three hours. Exploration of culture, economy, history, and politics of important locations around world. Hands-on experiential programs offered for students participating in UCLA Travel Study Program. Field trips included to gain first-hand experience. May be repeated with topic and/or location change. Offered in summer only. P/NP or letter grading.

**111A. Art of Citizen Diplomacy (2)** Seminar, two hours. Examination of theory, tools, and practice of civic engagement by highlighting student leadership. Provides students with practical tools in leadership, civic responsibility, and conflict resolution in order to tackle global issues such as climate change, gender equality, income equality, and human rights. Class activities to understand how ordinary citizens can build bridges between cultures. Letter grading.

**111B. Introduction to Experiential Learning Abroad (2)** Seminar, two hours. Intended for students planning to participate in international study abroad program during upcoming summer. Practical tools in effective listening, intercultural understanding, understanding multiple narratives, sharpening leadership skills, and articulating thoughts. Prepares students for study abroad experiences and offers them tools to appreciate their travel. Letter grading.

**111C. Engaging Global Cultures: Reflecting on Fieldwork (2)** Seminar, two hours. Academic venue for students who have attended study abroad programs to reflect on and share their experiences in order to enhance benefits of program in which they participated. Practical tools in active listening and applying knowledge acquired during international travel. Students analyze complex layers of intercultural communication, world affairs, and conflict. Post-study abroad follow-up activities, including presentations on campus and in community, other on-campus education activities, and writing of journal article. Letter grading.

**160. Selected Topics in International and Area Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to international and area studies. May be repeated for credit with topic change. P/NP or letter grading.

**188. Special Courses in International and Area Studies (4)** Seminar, three hours. Program-sponsored experimental or temporary courses, such as those taught by resident or visiting faculty members. May be repeated for credit with topic change. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activ-



ities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Senior Research Seminars: International and Area Studies (4)** Seminar, three hours. Enforced requisite: course 1. Limited to senior international and area studies majors. Organized on topics basis with readings, discussions, papers, and development of culminating project. May not be repeated for credit. Letter grading.

**193. Colloquia and Speaker Series (1)** Seminar, two hours. Introduction to current scholarship in field of international and area studies. Attendance at selected presentations with required response papers. May be repeated for credit. P/NP grading.

**195CE. Community and Corporate Internships in International and Area Studies (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be applied toward major requirements. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. P/NP or letter grading.

**198A. Honors Research in International and Area Studies (4)** Tutorial, to be arranged. Limited to international and area studies honors program students. Supervised individual research or investigation under guidance of faculty mentor. Development and planning of honors thesis. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in International and Area Studies (4)** Tutorial, to be arranged. Enforced requisite: course 198A. Limited to international and area studies honors program students. Supervised individual research or investigation under guidance of faculty mentor. Continued development and refinement of honors thesis. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in International and Area Studies (4)** Tutorial, to be arranged. Enforced requisite: course 198B. Limited to international and area studies honors program students. Final drafting and submission of completed honors thesis. Culminating paper of 35 to 50 pages required. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in International and Area Studies (4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be applied toward requirements via petition. May be repeated for credit. Individual contract required. Letter grading.

# International Development Studies

## International Development Studies Courses

### Lower Division

**1. Introduction to International Development Studies (5)** Lecture, three hours; discussion, one hour. Exploration of historical and contemporary context of socioeconomic inequalities between Global South and Global North. Focus on cultural, political, and economic realities of developing world, which includes countries of Asia, eastern Europe, Africa, Middle East, and Latin America. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**110. Culture, Power, and Development (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 1. Broad introduction to theoretical traditions in development studies, with focus on dynamics of culture, power, markets, states and social movements, with selected case studies in developing nations and comparative case analysis across Global South and North. Letter grading.

**120. Political Economy of Development (4)** (Same as Political Science M167C.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 1. Political economy approach to puzzle of why some countries are rich and others are poor and why, among latter, some have been able to achieve rapid rates of economic growth and others have not. Explanation and review of logic behind most important arguments that have been advanced to account for differences across countries in rates and levels of economic development. Letter grading.

**130. Theory and History in International Development (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 1. Social scientific survey of debates over policies contributing to economic development and underdevelopment. Topics include measurement and statistics, social and industrial policies, inequality, poverty, and historical differences for development paths across Europe, Asia, Africa, and Latin America. Letter grading.

**140. Decolonizing Political Economy: Colonialism and Development (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 1. Introduction to approaches and intellectual traditions of critical development studies. Violence of colonization and struggle for decolonization were two of defining processes of 20th century. Consideration of how development as global good can be reconciled with its origins in colonialism, and how development became hegemonic way of imagining decolonization. Particular focus on voices of critique and special emphasis to models of development that emerged from Africa, Middle East, and South Asia. Discussion of relationship between rival notions of development and competing ideas of international relations. Letter grading.

**150. Political Economy of Climate Change (4)** (Same as Political Science M152.) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 1. Exploration of how governments at international, national, and regional levels are addressing—or not addressing—extraordinary challenge of climate change. Use of combination of readings, lectures, and discussions to better understand causes, consequences, and policies to address most important political problem of our time—not just in U.S., but in other major countries as well. Concentration on challenge of mitigating, rather than adapting to, climate change; and concentration on energy use, rather than agriculture, forestry, and land use. Letter grading.

**160. Selected Topics in International Development Studies (4)** Lecture, three hours; discussion, one hour (when scheduled). Examination of one or more topics related to international development. May be repeated for credit with topic change. P/NP or letter grading.

**177. Superfoods: Cultural and Global Perspectives (4)** (Same as Food Studies M177 and Global Studies M177.) Seminar, four hours. Exploration of superfoods, which are nutrient rich foods considered beneficial for well-being, health, and longevity, as they are high in minerals, vitamins, and antioxidants. While superfoods have been part of cultures' diets for centuries, in recent decades they have been researched in scientific and medical communities. Citizens globally have begun to increasingly demand and consume foods that are nutritious, organic, and sustainable. It is important also to address issues such as marketing, misinformation, and hype about superfoods. Surge of interest in superfoods is increasingly important in context of ongoing global inequities with regards to food access and production. Study addresses paradox that communities cope simultaneously with malnutrition/hunger and obesity, and how farming practices for superfoods and staple crops are related. P/NP or letter grading.

**188. Special Courses in International Development Studies (4)** Seminar, three hours. Program-sponsored experimental or temporary courses on selected contemporary topics in international development taught by visiting instructors or affiliated faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: International Development Studies—Senior Seminar (4)** Seminar, three hours. Requisites: three courses from 110, M120, 130, 140. Limited to senior International Development Studies majors. Organized on topics basis with readings, discussions, papers. May not be repeated for credit. Letter grading.

**192. Undergraduate Practicum in International Development Studies (2)**

Seminar, two hours; practicum, to be arranged. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to serve as undergraduate course assistants in international development studies courses. Students assist in preparation and presentation of materials and development of innovative programs with guidance of faculty members. Consult academic counselor for further information. May not be applied toward major requirements. May be repeated for credit. P/NP grading.

**193. Colloquia and Speaker Series (1)** Seminar, two hours. Introduction to current scholarship in field of international development studies or of topics related to guest speaker series. May be repeated for credit. P/NP grading.

**194. Research Group Seminar (1)** Seminar, two hours. Designed to encourage participation and stimulate progress in specific research areas for undergraduate students who are part of departmental research group or internship. Discussion of research methods and current literature in field of international development studies or of research of faculty members or students. May be repeated for credit. P/NP grading.

**195. Community or Corporate Internships in International Development Studies (4)** Tutorial, to be arranged; fieldwork, 10 to 12 hours. Limited to juniors/seniors. Supervised internship in corporate, community, governmental, or nonprofit setting coordinated by International Development Studies. Additional supervision to be provided by internship site supervisor. Students meet with adviser and provide final reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

**198A. Honors Research in International Development Studies (4)** Tutorial, to be arranged. Preparation: 3.5 grade-point average in courses for major, formal application to honors program. Requisites: courses 110, M120, 130. Limited to junior/senior International Development Studies majors. Research, discussion, and planning of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in International Development Studies (4)** Tutorial, to be arranged. Preparation: 3.5 grade-point average in courses for major, formal application to honors program. Enforced requisite: course 198A. Limited to junior/senior International Development Studies majors. Research, discussion, and planning of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

**198C. Honors Research in International Development Studies (4)** Tutorial, to be arranged. Preparation: 3.5 grade-point average in courses for major, formal application to honors program. Enforced requisite: course 198B. Limited to junior/senior International Development Studies majors. Final drafting and submission of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in International Development Studies (4)** Tutorial, to be arranged. Limited to junior/senior International Development Studies majors. Supervised intensive directed research program in which students conduct interdisciplinary research under guidance of faculty mentor. Culminating paper required. May be applied toward major via petition. May not be repeated. Individual contract required. Letter grading.

# International Migration Studies

## International Migration Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**155. Theory, Research, and Methods in Study of International Migration (4)** Seminar, three hours. Limited to International Migration Studies minors. Overview of key debates in study of international migration, focusing on emigration, immigration, and connections between place of origin and destination. Letter grading.

**193. Colloquia and Speaker Series (2)** Seminar, two hours. Introduction to current scholarship in field of international migration studies. Attendance at selected presentations with required response papers. May be repeated for credit. P/NP grading.

**199. Directed Individual Research in International Migration Studies (4)** Tutorial, to be arranged. Prerequisite: course 155. Limited to International Migration Studies minors. Supervised individual research under guidance of faculty mentor. Culminating paper required. Individual contract required. Letter grading.

# Labor Studies

## Labor Studies Courses

### Lower Division

**M1A. Work, Labor, and Social Justice in U.S. (6)** (Formerly numbered Labor and Workplace Studies M1A.) (Same as Clusters M24A.) Lecture, three hours; discussion, two hours. Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. Letter grading.

**1B. Work, Labor, and Social Justice in U.S. (6)** (Formerly numbered Labor and Workplace Studies M1B.) (Same as Clusters M24B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M1A. Limited to first-year freshmen. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. Letter grading.

**1CW. Work, Labor, and Social Justice in U.S.: Special Topics (6)** (Formerly numbered Labor and Workplace Studies M1CW.) (Same as Clusters M24CW.) Seminar, three hours. Enforced requisite: course M1B. Limited to first-year freshmen. Topics include labor law/history, gender, race, and workplace. Satisfies Writing II requirement. Letter grading.

**10. Introduction to Labor and Workplace Studies (5)** (Formerly numbered Labor and Workplace Studies 10.) Lecture, three hours; discussion, one hour. Assumptions about work, including why some work is favored, whether those with good jobs really are better people than those without, and how this understanding of work and value came to be common sense. Unpacking of these and other assumptions about work, value, and power, with focus on low-wage workers, their communities, and their place in contemporary society. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Introduction to Labor Studies Research (4)** Seminar, three hours. Designed for freshmen/sophomores. Study of current topics and particular research methods in labor studies through readings and other assignments at introductory level. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101. Introduction to Labor and Social Movements in Los Angeles (4)** (Formerly numbered Labor and Workplace Studies 101.) Lecture, three hours; discussion, one hour. Students gain exposure to concepts of social justice, social movements, and workers and labor issues in context of global city of Los Angeles. In-depth examination of experience of workers and role of labor movement in Los Angeles, both historically and currently. Topics include changing organization of work in U.S. and reconfiguration of employment relationships; response of labor movement, historically and in present, to managerial initiatives; way in which organized labor has handled issues of class,

race, ethnicity, gender, and immigration status; and challenges facing workers in 21st century and their institutional responses in Los Angeles. P/NP or letter grading.

**105. American Working Class Movements (4)** (Same as History M146B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of American working class from Colonial times to present, with emphasis on both organized and unorganized labor, history of Knights of Labor, AFL-CIO, and development of labor politics. P/NP or letter grading.

**108. Common Thread: Garment Workers Past, Present, Future (4)** (Same as Chicana/o and Central American Studies M128C and Gender Studies M169.) Lecture, three hours. Study blends frameworks from economics, labor history, and ethnic studies to offer in-depth exploration of lives and experiences of garment industry workers from early 19th century to present. In contrast to traditional narratives, study locates garment workers--majority of whom are immigrant women--at vanguard of U.S. labor movement, showing how they pioneered new forms of worker education and other social welfare programs, and became leaders in fight for women's, civil, and immigrant rights. Exploration of garment work relationship to American culture, tracing how sweatshop became symbol of worker exploitation, how popular culture and fashion trends impacted lived realities of workers in those shops, and how racial and gendered expectations shaped public perceptions of garment workers. By doing so, study reveals garment work to be central thread that ties together histories of global trade, industrialization, gender and sexuality, immigration, radicalism, unionization, and American imperialism. P/NP or letter grading.

**114C. African American Political Thought (4)** (Formerly numbered Labor and Workplace Studies M114C.) (Same as African American Studies M114C and Political Science M180A.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

**115. We Gone Be Alright: Developing Next Generation of Black Organizers (4)** (Same as African American Studies M115.) Seminar, four hours. Learning from and building on Black labor and community organizing traditions, students develop skills and mindsets needed for transformative leadership. Students connect with leaders of community organizations, student organizers, and prepare for more intensive community-based work. P/NP or letter grading.

**116. Asian American Social Movements (4)** (Formerly numbered Labor and Workplace Studies M116.) (Same as Asian American Studies M116.) Lecture, three hours. Designed for juniors/seniors. Examination of several dimensions of Asian American social movements, including grassroots, mass movement character, political and social vision, and social and political relevance to current issues. How movement participants linked struggle for change with own personal transformation and growth. P/NP or letter grading.

**117. Negotiation (4)** (Formerly numbered Labor and Workplace Studies M117.) (Same as Communication M117.) Lecture, four hours. Art and science of negotiation in securing agreements between independent parties. Theory and practice that underlies successful negotiation. Experiential course in which students learn broad array of negotiation skills, including identifying one's own (and others') communication style, identifying and incorporating components of successful negotiation, and resolving conflict between parties. Letter grading.

**119XP. Asian American and Pacific Islander Labor Issues (4)** (Formerly numbered M119.) (Same as Asian American Studies M119XP.) Lecture, three hours. Examination of historical and contemporary labor issues in Asian and Pacific Islander American communities, with emphasis on key role that Asian and Pacific Islander American students can play in supporting labor struggles of low-income immigrants. P/NP or letter grading.

**121. Issues in Latina/Latino Poverty: Mexican and Central American Voices from Los Angeles (4)** (Formerly numbered Labor and Workplace Studies M121.) (Same as Chicana/o and Central American Studies M121 and Urban Planning M140.) Lecture, four hours. Examination of key issues (work, housing, and neighborhoods) in urban poverty, with particular focus on Mexican and Central American immigrant populations in Los Angeles. Exploration of major theoretical models that explain urban poverty and application of them in comparative context while exploring differences between Mexican and Central American immigrants. Social conditions and forces that help us understand lives of poor people in comparative context while looking at differences between two major Latino-origin populations in Los Angeles. Critical analysis of new forms of urban poverty in contemporary American society. Letter grading.

**122. Planning Issues in Latina/Latino Communities: Preserving and Strengthening Community Assets in Mexican and Salvadoran Los Angeles (4)** (Formerly numbered Labor and Workplace Studies M122.) (Same as Chicana/o and Central American Studies M122 and Urban Planning M171.) Lecture, four hours. How community and economic development interact, role of assets in community development, and unique synergies and pitfalls that enable or disable communities from developing to their potential. How to strengthen and how to preserve community resources in Pico-Union neighborhood in Los Angeles. Research entails historical analysis, reviews, interviews, electronic asset mapping, web-based data processing and analysis, oral and written reports, and cyber-based research. Letter grading.

**123. Chicano/Latino Community Formation: Critical Perspectives and Oral Histories (4)** (Formerly numbered Labor and Workplace Studies M123.) (Same as Chicana/o and Central American Studies M119.) Lecture, four hours. Analysis of historical formation and development of Chicano/Latino communities in 20th century, with focus on labor, immigration, economic structures, electoral politics, and international dimensions. Letter grading.

**124. Future of Work in Decarcerated California (4)** (Same as African American Studies CM166.) Seminar, three hours. Limited to students in Community Scholars program. Exploration of scope of employment and nature of jobs that are attached to current system of mass incarceration in California, with focus on Los Angeles county. Study of history and evolution of carceral system and its relationship to oppression of Black people, poor, and other stigmatized groups. Exploration of history of employment discrimination against Black workers and how successful demand for unionized government jobs (public sector work) evolved as anti-discrimination remedy. Investigation of work, especially by people of color, in existing carceral regimes, and its impact on individual worker wellness and community well-being. Examination of tension between racial justice agendas to decarcerate California and those to prevent downward mobility of workers of color recruited by state to carry out failed policies of war on drugs. P/NP or letter grading.

**124B. Future of Work in Decarcerated California II: Applied Research and Policy Analysis for Implementation of Justice Transformation (4)** (Same as African American Studies CM166B.) Seminar, three hours. Limited to students in Community Scholars program. Requisite: course M124. Second course in two-quarter participatory action research program that partners students with community-based change agents. Study involves project-based learning in groups made up of undergraduate and graduate students and community members. Students contribute to development of collective policy platform that centers recommendations of formerly employed and formerly incarcerated people in broader community vision for transitioning to decarcerated workforce. P/NP or letter grading.

**125. U.S./Mexico Relations (4)** (Formerly numbered Labor and Workplace Studies M125.) (Same as Chicana/o and Central American Studies M125.) Lecture, four hours. Examination of complex dynamics in relationship between Mexico and U.S., using political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries. P/NP or letter grading.

**126. Farm Worker Transnational Struggle (4)** (Formerly numbered Labor and Workplace Studies 126.) Lecture, three hours; discussion, one hour. Focus on historical and contemporary issues farm workers face in restructured economy, and class, racial, and gender dynamics that shape their work experiences and economic and political opportunities in society at large. Study also covers gender, race, and class conflicts in workplace and during collective struggles for equality in contemporary society. Topics include political and cultural legacy of farm workers' struggle in U.S. and its long-lasting impact on labor movement and immigrant workers' and social justice movements. Special focus on assessing and understanding role farm-worker-led labor and civil rights movements have had in promoting multiethnic and multiracial campaigns for workplace and economic justice from cross-border perspective. Students develop theoretical and practical understanding of farm workers' experiences across U.S.-Mexico border, and of legacy of United Farm Workers and other farm worker unions. P/NP or letter grading.

**127. Farmworker Movements, Social Justice, and United Farm Workers Legacy (4)** (Formerly numbered Labor and Workplace Studies M127.) (Same as Chicana/o and Central American Studies M127.) Lecture, four hours. Designed for juniors/seniors. Historical and social context of farmworker organizing, including its multiracial origins and its influence on fight for equality of working women. Specific focus on organizing of United Farm Workers and Farm Laborers Organizing Committee, and their relationship to AFL-CIO, other unions, and their influence on Chicano Movement. Letter grading.

**128. Race, Gender, and U.S. Labor (4)** (Formerly numbered Labor and Workplace Studies M128.) (Same as Chicana/o and Central American Studies M128.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in U.S. and North America. Discus-

sion of race, class, and gender issues raised within movement, and various strategies for social change and economic equity pursued through organized labor and other means. Letter grading.

**129. Community-Engaged Research Methods (4)** (Same as Chicana/o and Central American Studies M129 and Public Affairs M117C.) Lecture, four hours. Students are trained in designing, drafting, piloting, and administering new survey focused on transitions to adulthood. Written in collaboration with labor and community partners serving Latinx, Asian Americans and Pacific Islanders, Black, and Indigenous youth and low-wage workers, this survey gathers data on workforce development, labor rights, education, health, mental health, and civic engagement of young people residing in Black, Indigenous, and people of color communities. Students are exposed to historical development of racial statistics, role of racial statistics in contemporary life, and critical quantitative science. Includes testing questions on racial identity and attitudes, gender identity, workforce development, labor rights, healing and wellness, and other topics determined by labor and community partners. P/NP or letter grading.

**134XP. Engaging Immigrants and Their Families (5)** (Formerly numbered M134SL.) (Same as Chicana/o and Central American Studies M134XP and Community Engagement and Social Change M134XP.) Lecture, two hours; discussion, two hours; field placement, two hours. Survey and exploration of immigrant landscape in Los Angeles—truly global city acting in part to buffer, settle, and incorporate immigrants in daily life. Focus on civil society to explore multiple forms of interventions and impacts that take place in multiple communities across Los Angeles basin. Service learning partnerships focus on organizations addressing immigration concerns. Letter grading.

**136. Working Families and Educational Inequalities in Urban Schools (4)** (Formerly numbered Labor and Workplace Studies M136.) (Same as Education M136.) Seminar, three hours; fieldwork, five hours. Exploration of complex relationship between working-class and poor communities and inequalities in American urban schools. Drawing on multiple disciplinary frameworks that address issues of race, ethnicity, and immigration, schools viewed as sites where inequalities are produced and resisted. Review of history of exclusionary treatment and divergent conceptual frames that educational researchers have used to understand notion of inequality, access to quality public education, and how race, ethnicity, and class affect school experiences for working-class and poor communities. Look inside schools through community service learning opportunity to examine systems, structures, and everyday practices that sustain and reproduce inequality and policies that intend to remedy educational inequalities in urban schools. Opportunity to investigate issues of working-class families and inequalities as they relate to students' own communities and experiences. P/NP or letter grading.

**140. Working It: Women, Work, and Family (4)** (Formerly numbered Labor and Workplace Studies 140.) Lecture, three hours; discussion, one hour. Examination of working women in U.S. history from 19th-century midwives to 21st-century sex workers through film, oral history, and traditional forms of scholarship. Exploration of personal and work life of women from variety of intersectional categories including class, race, ethnicity, sexuality, and immigration status with focus on systems that have shaped workplace experiences for women over time, including gender discrimination, sexual harassment, public policy, unionization, and reproductive health. Special attention given to strategies women have utilized to shape their work experience, and to improve working conditions for themselves and their working-class sisters. P/NP or letter grading.

**143. Class and Gender in Care Work (4)** (Same as Asian American Studies M162, Chicana/o and Central American Studies M128B, and Gender Studies M140C.) Lecture, three hours; discussion, one hour. Examination of how gender, race, class, and citizenship status shape domestic labor in U.S. Examination of domestic worker experiences through film, fiction, and traditional scholarship. Investigation of why domestic work is in high demand, who employs domestic workers, and why immigrants and women of color make up large percentage of this workforce. Exploration of how domestic workers navigate pay and working conditions, and how they build community and family networks in shadows of their privileged employers. P/NP or letter grading.

**144. Women's Movement in Latin America (4)** (Formerly numbered Labor and Workplace Studies M144.) (Same as Chicana/o and Central American Studies M144 and Gender Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and

transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

**149. Media: Gender, Race, Class, and Sexuality (5)** (Formerly numbered Labor and Workplace Studies M149.) (Same as Communication M149 and Gender Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication and Gender Studies majors and Labor Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

**152. Work, Social Justice, and Arts (4)** (Formerly numbered Labor and Workplace Studies 152.) Lecture, three hours; field visit. Analysis of how art (in cartoons, poster art, murals, photography, film, visual art, theater, performance, dance, and music) has been influential in popular movements for economic, racial, and social justice by artists, workers' groups, American labor movement, and other social movements such as civil rights, women's rights, immigrant rights, and Black Lives Matter. Reflection on different discourses of art-making that have been used in specific historical struggles (1920s, Great Depression of 1930s, 1960s, to present). Examination of what Los Angeles has to offer in terms of art, labor, and social justice movement art-making. Students visit labor, social justice, or arts organization in L.A. that is focused on themes of work, labor, and art. Exploration of spectrum of art forms (dance, music, sculpture, theater, visual art, film, museum curation) that have been produced and reproduced as reflections of work, labor, and social justice struggles in U.S. P/NP or letter grading.

**153. Stories of Struggle: Work, Class, and Narrative in Contemporary America (4)** (Formerly numbered Labor and Workplace Studies 153.) Lecture, three hours. Overview of contemporary working narratives. Investigation of how working-class Americans from diverse backgrounds have narrated their struggles with poverty, education, work, parenthood, bodily suffering, and war. Inquiry into what readers can learn from these struggles as students, writers, and activists. Emphasis on 21st-century narratives. Analysis of variety of genres, including poetry, lyrics, short stories, journalism and reportage, novels, memoir, and autobiography, for how they portray working class people and what they offer working class movement culture. Consideration of class as intersectional category of experience along with race, gender, and sexuality. Students read narratives about class and work, and contribute to body of working class literature through memoir, fiction, poetry, or journalism. P/NP or letter grading.

**154. Storytelling for Activists and Organizers (4)** Lecture, three hours. Equally at home around campfire or in boardroom, storytelling is one of earliest and most intrinsic forms of human expression; and powerful tool for human connection. Through stories, people share aesthetic, pedagogical, recreational, and communal knowledge; build empathy and trust; and work together to forge more just society. Pushing beyond transactional storytelling model, study asks how stories—traditional, historical, personal, and political—allow people to connect with one another. Premise is that stories are basis of community solidarity. Study also asks how labor activists and organizers might harness power of storytelling in service of social justice, and equitable and diverse society. Introduction to elements of effective storytelling. Analysis and investigation of stories in contemporary American life. Students practice telling stories in collaborative, workshop-style environment. P/NP or letter grading.

**165. Sociology of Race and Labor (4)** (Formerly numbered Labor and Workplace Studies M165.) (Same as African American Studies M165 and Sociology M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

**166A. Immigrant Rights, Labor, and Higher Education (4)** (Formerly numbered Labor and Workplace Studies M166A.) (Same as Asian American Studies M166A and Chicana/o and Central American Studies M156A.) Lecture, three hours; discussion, one hour. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts

between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

**166B. Research on Immigration Rights, Labor, and Higher Education (4)** (Formerly numbered Labor and Workplace Studies M166B.) (Same as Asian American Studies M166B and Chicana/o and Central American Studies M156B.) Seminar, two hours. Requisite: course M166A. Expansion of research conducted by students in course M166A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

**166C. Research on Immigrant Students and Higher Education (4)** (Formerly numbered Labor and Workplace Studies M166C.) (Same as Asian American Studies M166C and Chicana/o and Central American Studies M156C.) Seminar, three hours. Enforced requisites: courses M166A, M166B. Expansion of research conducted by students in courses M166A and M166B involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Designed around class project, where students work on showcasing all material collected throughout year. Letter grading.

**167. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers (4)** (Formerly numbered Labor and Workplace Studies M167.) (Same as African American Studies M167, Asian American Studies M163, and Chicana/o and Central American Studies M130.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multi-racial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

**168. Law and Politics of Immigration: Migrants and Inevitable Evolution of Collective and Individual Rights (4)** (Formerly numbered Labor and Workplace Studies 168.) Lecture, three hours. With immigration and rights of migrants at center of current political and legal debates throughout world, study offers critical introduction to inevitable evolution of law and policy resulting from—and in reaction to—movement of immigrants. Endows students with wide array of analytical tools with which to engage current political debates about immigration. Using historical and modern texts, while incorporating elements of art, popular culture, and storytelling, study encourages discussion, debate, and analysis about immigrants' role in development of rights and modern political debates about immigration. Exploration of themes of inclusion, exclusion, integration, and multiculturalism. Students describe shortcomings of status-quo policies while also imaging and prescribing arguments about where law can and should go. P/NP or letter grading.

**170. Improving Worker Health: Social Movements, Policy Debates, and Public Health (4)** (Formerly numbered Labor and Workplace Studies M170.) (Same as Community Health Sciences CM170.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. P/NP or letter grading.

**171. Labor and Economic Development (4)** (Formerly numbered Labor and Workplace Studies M171.) (Same as Urban Planning CM172.) Lecture, three hours. Exploration of economic development and identification of ways that labor and labor unions directly and indirectly influence and shape economic development. Wide range of roles that labor plays, and could play, in promoting and supporting economic development for all. Letter grading.

**173. Nonviolence and Social Movements (4)** (Formerly numbered Labor and Workplace Studies M173.) (Same as African American Studies M173 and Chicana/o and Central American Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of non-violent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

**174. Labor and Employment Law (4)** (Formerly numbered Labor and Workplace Studies 174.) Lecture, three hours. Using combination of cases, statutes, news articles, films, and oral history, introduction to history of organized labor; current debates and trends; and basic structure of laws, regulations, and cases that govern organizing to improve workplace conditions. Study covers primary federal acts and court cases that govern strikes, picketing,

boycotts, and union elections. Examination of challenges to organized labor from inside and outside labor movement, including right-to-work legislation; dismantling of public sector unions; and racism, sexism, and anti-immigrant sentiment in labor movement. Emphasis on case studies. Topics include new trends in labor organizing. Offers mix of guest speakers, oral history, case excerpts, scholarly articles, news articles and blogs, videos, small-group work, and community engagement. P/NP or letter grading.

**175. Agitational Communication (4)** (Formerly numbered Labor and Workplace Studies M175.) (Same as Communication M165.) Lecture, four hours; discussion, one hour (when scheduled). Theory of agitation; agitation as force for change in existing institutions and policies in democratic society. Intensive study of selected agitational movements and technique and content of their communications. Letter grading.

**176. Visual Communication and Social Advocacy (4)** (Formerly numbered Labor and Workplace Studies M176.) (Same as Communication M176.) Lecture, four hours. Visual communication reaches diverse audiences in communicating major social and political topics. Cartoons, posters, murals, and documentary photography have had powerful world impact. Survey of all four genres of visual communications as features of modern mass media. Letter grading.

**177. Spirituality, Mindfulness, Self-Care, and Social Justice (4)** (Formerly numbered Labor and Workplace Studies 177.) Seminar, three hours. Exploration of role of spirituality and mindfulness practice in labor and immigrant rights movements. Focus on teachings of St. Francis of Assisi, Mahatma Gandhi, Martin Luther King, Thich Nhat Hanh, and other spiritual leaders. Uses specific case studies and workshop experiences. Includes videos and guest lectures by scholars and activists who integrate their spirituality into their daily work. P/NP or letter grading.

**179A. Neoliberalism, Social Justice, and Transformative Politics (4)** Lecture, three hours. Focus on the study of forms of community organizing in the context of neoliberalism that promote transformational politics committed to achieving a more inclusive form of democracy and a greater level of social justice. P/NP or letter grading.

**179B. Doing Democracy: Politics of Resistance, Protest, and Social Movements (4)** Lecture, three hours. Focus on study of the nature and characteristics of social movements as a form of political resistance, with emphasis on late 20th- and early 21st-century pro-democratic modes of collective action. P/NP or letter grading.

**180. Southern California Regional Economy (4)** (Formerly numbered Labor and Workplace Studies M180.) (Same as Urban Planning CM137.) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Letter grading.

**181. Researching Labor and Labor Movements (4)** Lecture, three hours. Introductory examination of research methodologies used by social scientists to study labor and worker rights movements. Topics include ethics and research designs; data collection methods (e.g., in-depth interviews, surveys, archival research, and ethnography); how to write and present research; and how research can be used to promote social justice in workplaces, empower local communities, and influence public policy. P/NP or letter grading.

**182. Oral History for Social Change (4)** (Formerly numbered Labor Studies 182A.) Lecture, three hours. Introduction to field of oral history and its role in social movements. Students receive hands-on experience through independent fieldwork where they design, execute, and process oral history research project on contemporary topics such as immigration, work, housing, incarceration, and social movements. Through reading and discussion students learn oral history methods and theory along with ethical approaches to working with human subjects. Emphasis on innovative uses of oral history interviews that bring silenced voices to wide public audience for social justice outcomes. No prior knowledge or experience with interviewing and processing required. P/NP or letter grading.

**187. Special Courses in Labor and Workplace Studies (4)** (Formerly numbered Labor and Workplace Studies 187.) Lecture, three hours; discussion, one hour. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

**188. Special Courses in Labor and Workplace Studies (4)** (Formerly numbered Labor and Workplace Studies 188.) Seminar, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty

mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190A. Introduction to Community-Engaged Research (4)** (Formerly numbered Labor and Workplace Studies M190A.) (Same as Community Engagement and Social Change M190A.) Seminar, three hours. Enrollment by consent of instructor. Designed for students participating in Astin Community Scholars Program. Introduction of principles of community-engaged research. Exploration of intentions behind doing research with community residents and organizations, our responsibilities when conducting research in historically disenfranchised communities, and relationship between socially-just research outcomes and methodologies. P/NP or letter grading.

**190B. Community Engaged Research in Practice: Community Scholars (4)** (Same as Community Engagement and Social Change M190B.) Seminar, three hours. Requisite: course M190A. Enrollment by consent of instructor. Designed for students participating in Astin Community Scholars Program. Students learn from faculty, community stakeholders, graduate students, and key academic experts about emerging organizing models, best practices, and changing landscape in chosen topic. Provides students with opportunity to work with leaders from key community and labor organizations across Los Angeles on six-month dynamic participatory research project. Focus on current topic affecting Angelenos and neighboring communities. Key outcomes may include production of policy reports, popular education materials, and/or book publication by UCLA Labor Center and collaborative partners. Primary focus on engaging policy makers and other change agents. P/NP or letter grading.

**190C. Community Engaged Research in Practice: Community Scholars (4)** (Same as Community Engagement and Social Change M190C.) Seminar, three hours. Requisites: courses M190A, M190B. Enrollment by consent of instructor. Designed for students participating in Astin Community Scholars Program. Students learn from faculty, community stakeholders, graduate students, and key academic experts about emerging organizing models, best practices, and changing landscape in chosen topic. Provides students with opportunity to work with leaders from key community and labor organizations across Los Angeles on six-month dynamic participatory research project. Focus on current topic affecting Angelenos and neighboring communities. Key outcomes may include production of policy reports, popular education materials, and/or book publication by UCLA Labor Center and collaborative partners. Primary focus on engaging policy makers and other change agents. P/NP or letter grading.

**191A. Labor Studies: Research Principles, Methods, and Practices (4)** (Formerly numbered 191.) Seminar, three hours. First part of Labor Studies capstone senior research project series with focus on fundamentals of social science research methods. Through lectures, key readings, and in-class exercises, students develop understanding of critical debates regarding role of research within socioeconomic and political contexts that impact workers, organizations, and communities at large. Overview of various research methods and techniques, literature review, data collection, analysis, and final paper. Focus on workers, labor and immigrant rights movements, policy initiatives, and/or political action in Los Angeles as research lens. P/NP or letter grading.

**191B. Labor Studies: Research in Action (4)** Seminar, three hours; fieldwork, five hours. Requisite: course 191A. Second part of Labor Studies capstone senior research project series with focus on research methods in action.

Through lectures, key readings, in-class exercises, and field work, students develop understanding capstone research project including refined research question(s), advanced literature review, research design and plan, data collection and analysis, and final paper outline. Continued development of applied qualitative and quantitative research skills with focus on workers, labor and immigrant rights movements, policy initiatives, and/or political action in Los Angeles as research lens. P/NP or letter grading.

**194A. Research Group Seminars: Labor Summer Research Program (4)** (Formerly numbered Labor and Workplace Studies 194A.) Seminar, three hours. Enforced corequisite: course 194C. Designed for undergraduate students who are part of Labor Summer Research program. Discussion of qualitative applied research methods used by union researchers and scholars engaged in labor relations and workplace studies. Through combination of lectures, key readings, and active participation in hands-on research fieldwork, development of understanding of critical debates regarding role of research and socioeconomic contexts that impact low-wage workers and their families. May be repeated for credit. Offered in summer only. P/NP or letter grading.

**194B. Research Group Seminars: Labor and Workplace Studies (4)** (Formerly numbered Labor and Workplace Studies 194B.) Seminar, three hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field of labor studies or of research of faculty members and/or students. May be repeated for credit. P/NP or letter grading.

**194C. Field Research Group Seminar (4)** Seminar, one hour; fieldwork, 15 hours. Designed for undergraduate students who are part of Labor Summer Research program. Offers opportunity for immersion in applied research in field of labor studies. Field research and analysis contributing to research project. Students learn how to conduct surveys, analyze data, and contribute their analysis to research brief. Students develop understanding of critical debates regarding role of research and policy on selected topic. May be repeated for credit. Offered in summer only. P/NP or letter grading.

**195A. Community or Corporate Internships in Labor and Workplace Studies (4)** (Formerly numbered Labor and Workplace Studies 195A.) Tutorial, one hour; fieldwork, 15 hours. Enforced corequisite: course 194A. Limited to juniors/seniors. Internship in supervised setting in community agency, labor union, or other organization concerned with work and employment issues. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic written reports on their experience. May be repeated for credit. Individual contract with supervising faculty member required. Offered in summer only. P/NP or letter grading.

**195B. Community or Corporate Internships in Labor and Workplace Studies. (2 to 5)** (Formerly numbered Labor and Workplace Studies 195B.) Tutorial, to be arranged; internship, up to 15 hours. Limited to juniors/seniors. Internship in supervised setting in community agency, labor union, or other organization concerned with work and employment issues. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic written reports on their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**195CE. Worker and Community Organizing for Social Change: Research Justice Internship (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Students work intensively with community organization on structured activity that supports organization's mission and student's intellectual development. Students meet regularly with graduate student instructor to reflect on internship experience, assigned readings, and reflective writing assignments. Students complete final paper that links research and experience. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. Letter grading.

**199. Directed Research in Labor and Workplace Studies (2 to 4)** (Formerly numbered Labor and Workplace Studies 199.) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.



# Latin American Studies

## Latin American Studies Courses

### Graduate

**205. Latin Americanist Scholarship (4)** Lecture, three hours. Panoramic introduction to methods and issues in various disciplines that study Latin America, with guest lecturers from various fields. (Latin American Studies core course.)

**250B. Interdisciplinary Seminar: Latin American Studies (4)** Lecture, three hours. Problem-oriented seminar on critical areas stressed in University's co-operative programs in Latin America.

**250C. Interdisciplinary Topics in Latin American Studies (4)** Reading knowledge of Spanish or Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature. M260.

**Health and Culture in Americas (4)** (Same as Anthropology M233R and Community Health Sciences M260.) Lecture, three hours. Recommended requisite: Community Health Sciences 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

**262. HIV/AIDS and Culture in Latin America (4)** (Same as Community Health Sciences M250.) Seminar, three hours. Exploration of cultural, political, and public health context for people living with and at risk for HIV/AIDS and their families in Latin America. Public health aspects, including epidemiology, comorbidity concerns and community interventions, medical anthropological study of experience of those impacted, and grass-roots responses, as well as political/economic context addressing poverty and structural violence. Letter grading.

**264. Latin America: Traditional Medicine, Shamanism, and Folk Illness (4)** (Same as Anthropology M233Q and Community Health Sciences M264.) Lecture, three hours. Recommended preparation: Community Health Sciences 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

**268A. Seminar: Recent Latin American History (4)** (Same as History M268A.) Seminar, three hours. Course M268A is requisite to M268B. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. In Progress grading (credit to be given only on completion of course M268B).

**268B. Seminar: Recent Latin American History (4)** (Same as History M268B.) Seminar, three hours. Requisite: course M268A. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. Letter grading.

**291A. Variable Topics in Latin American Studies (4)** Seminar, three hours. Selected topics on Latin America. May be repeated for credit with topic change. S/U or letter grading.

**291B. Variable Topics in Latin American Studies (4)** Seminar, three hours. Selected topics on Latin America. May be repeated for credit with topic change. S/U or letter grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. May be repeated, but only 4 units may be applied toward the minimum graduate course requirement. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination (4)** Tutorial, to be arranged. Ordinarily taken only during term in which student is being examined. S/U grading.

**598. Research for and Preparation of MA Thesis (4)** Tutorial, to be arranged. Only 4 units may be applied toward the minimum graduate course requirement. S/U grading.

## Law

## Law, Undergraduate Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**156. American Political Thought Seminar (3)** Seminar, nine hours. Examination of American political thought from founding to writings of Abraham Lincoln. Readings include Locke's Second Treatise of Government, Declaration of Independence, Federalist numbers 10 and 51, and numerous writings and speeches of Lincoln, including extensive portions of Lincoln-Douglas debates. Emphasis on class discussion. Letter grading.

**161. Consumer Bankruptcy Policy Seminar (3)** Seminar, 13 hours. Examination of consumer bankruptcy policy with one architect of 1978 Bankruptcy Code. Discussion of debt payment in ancient Babylon where spouses and siblings could be sold into slavery for nonpayment of relative's debt. Examination of bankruptcy in U.S. history and analysis of heart of consumer bankruptcy policy, such as when debtors should be released from debts, what property debtors should keep, and how debtors can put together repayment plans. P/NP or letter grading. 20 page paper required.

**163A. International Human Rights Colloquium (3)** Lecture, four hours. Alternative approaches to understanding international human rights law. Consideration of legal, political, sociological, and economic perspectives. Weekly presentations on topic by 11 leading human rights scholars from U.S. and abroad. Two-page critique of each paper presented by guest lecturers required. P/NP or letter grading.

**163B. International Human Rights Colloquium (1)** Lecture, one hour. Requisite: course 163A. Continuation of course 163A. P/NP or letter grading.

**170. Race and Racism in California Legal History, 1846 to Present (4)** Seminar, 14 hours. Limited to freshmen/sophomores. Exploration of California legal history, with focus on issues of race and racism, beginning with mid-19th-century transition from Mexican Alta California to U.S. territory and statehood. Topics include state measures affecting California Indians in 19th century, African Americans in California's 19th-century history, measures used to curtail Chinese immigration laws designed to prevent racial intermixing, Alien Land Laws aimed at Japanese residents of California, relocation of Japanese citizens after Pearl Harbor, California's response to U.S. immigrants from dust bowl during great depression, post-World War II through 1960s measures aimed at equal access to things like home ownership, employment, and rental housing, and uses of initiative in modern era. P/NP or letter grading.

**173. Topics in American Constitutional History (4)** Lecture, three hours. Introduction to major themes, events, and cases in American constitutional history. U.S. Supreme Court decisions and other sources of constitutional meaning, including popular movements and expressions of constitutional principle from actors in other branches of federal government and in states. Emphasis on historical background and ideological context for particular constitutional controversies at various points in American history, with more formal analysis of particular decisions and competing methods of constitutional interpretation considered. Topics include origins of judicial review, debates over meaning of federalism in early republic, slavery and constitution, Reconstruction Amendments, laissez-faire constitutionalism, citizenship and empire, origins of civil liberties, New Deal constitutionalism, and prehistory of Brown versus Board of Education. P/NP or letter grading.

**175. Seminar: Individual Rights Protected by U.S. Constitution (3)** Seminar, two hours. Limited to juniors/seniors. Broad introduction to and examination of individual rights protected under Bill of Rights and 14th Amendment to U.S. Constitution, including freedom of speech and press, religious freedom, right to privacy (including procreative rights) and due process of law, constitutional protection against discrimination based on race and gender, and basic criminal procedure protections. Emphasis on principal Supreme court cases establishing scope of those rights and their limits. Letter grading.

**180. Special Topics in Law (4)** Lecture, four hours. Topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors or students. May be repeated for credit. P/NP or letter grading.

**182. Law and Popular Culture (4)** Lecture, four hours. Focus on interface between two important subjects—law and popular culture. Students view series of films or television shows related to law, lawyers, and legal system. Discussion of pop culture treatment of subjects such as adversary system, good and bad lawyers, female lawyers, lawyers from lesbian, gay, bisexual, and transgender community, minority lawyers, work life of lawyers, legal education, ethical issues, jury system, and criminal and civil justice, drawing on film theory and filmmaking technique to deepen understanding of interrelationship between law and popular culture. Illumination of ways in which pop culture products both reflect and change social views about law and lawyers. Offered in summer only. P/NP or letter grading.

**183. Law and Order (2)** Lecture, two hours. Introduction to basic principles of criminal law. How to read and interpret judicial cases and provisions of penal code to learn how American criminal justice system works. Discussions structured to simulate experience of typical law school classroom. P/NP or letter grading.

**184. Introduction to Legal Education (4)** Lecture, four hours. Preliminary introduction to legal pedagogy and overview of American legal system. Analysis of appellate and U.S. Supreme Court cases and legislative materials to develop foundational law school skills and become familiar with principles of both scholarly and practice-oriented legal analysis. Topics include introduction to case analysis, reading cases, exploring precedent and stare decisis, separation of powers, and statutory interpretation. P/NP or letter grading.

**185. Corporate Mock Trial (4)** Lecture, four hours. Introduction to basic principles of business law, such as how law applies to various business entities, duties and liabilities of corporate officers and directors, and shareholder derivative suits. American legal system and how litigation progresses from filing of complaints through trial. Students participate in mock trial at end of course. P/NP or letter grading.

**186. Law and Order (4)** Lecture, four hours. Introduction to basic principles of criminal law. How to read and interpret judicial cases and provisions of penal code to learn how American criminal justice system works. Discussions structured to simulate experience of typical law school classroom. P/NP or letter grading.

**187A. Legal History Colloquium (3)** Seminar, two hours. Corequisite: course 193. Reading of scholarly papers prepared by school faculty members and other scholars in fields of legal history, economics, and political science. Preparation of critiques and discussion of issues in seminar setting with author of papers. P/NP or letter grading.

**187B. Politics and International Law Colloquium (3)** Seminar, two hours. Corequisite: course 193. Limited to College Honors students. Lectures on alternative theoretical approaches (including realism, institutionalism, and constructivism) to understand relationship between politics and international law. Weekly presentations on topic by 10 leading law and political science scholars from the U.S. and abroad. Reading of scholarly papers, preparation of critiques, and discussion of issues in seminar setting with authors of papers. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**191. Variable Topics Research Seminars: Law—California Legal History (4)** Seminar, two hours. Requisite: course 170. Research project, selected in consultation with faculty member and using original and secondary materials, to be conducted, followed by major presentation of student work to class and writing of major research paper. Letter grading.

**193. Journal Club Seminars: Law (1)** Seminar, one hour; discussion, two hours. Corequisite: course 187A. Adjunct course limited to undergraduate students taking law colloquium. Intensive review and follow-up of scholarly papers presented in colloquium series. Reading of legal cases and supplemental material to provide legal framework for each scholarly paper presented in colloquium. Supervised by faculty member in charge of colloquium series. May be repeated for credit. P/NP grading.

**199. Directed Research in Law. (1 to 6)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating scholarly paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Lesbian, Gay, Bisexual, Transgender, and Queer Studies

## Lesbian, Gay, Bisexual, Transgender, and Queer Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M101A. Premodern Queer Literatures and Cultures (5)** (Same as English M101A and Gender Studies M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of discrete period of queer literature from beginning to circa 1850. Works by such writers as Sappho, Plato, Marlowe, Shakespeare, and Thomas Gray may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**101B. Queer Literatures and Cultures, 1850 to 1970 (5)** (Same as English M101B and Gender Studies M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Survey of discrete period of queer literature and culture from circa 1850 to 1970. Works by such authors as Walt Whitman, Radclyffe Hall, Gertrude Stein, Virginia Woolf, Langston Hughes, Tennessee Williams, Henry Blake Fuller, and James Baldwin may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**101C. Queer Literatures and Cultures after 1970 (5)** (Same as English M101C and Gender Studies M105C.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Examination of cultural production, specifically literature, produced by queers after Stonewall rebellion in New York in 1969, widely regarded as origins or beginning of modern lesbian and gay rights movement in U.S. Writings and films by such authors as Andrew Holleran, Leslie Feinberg, Achy Obejas, Essex Hemphill, Audre Lorde, Cheryl Dunye, and Alison Bechdel may be included. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**101D. Studies in Queer Literatures and Cultures (5)** (Same as English M101D and Gender Studies M105D.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Variable specialized studies course in queer literatures and cultures. Topics focus on particular problem or issue in terms of its relationship to queer cultures and writings. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**107B. Studies in Gender and Sexuality (5)** (Same as English M107B and Gender Studies M107B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Examination of literary and cultural production through lens of gender and sexuality. Depending on instructor, emphasis may be historical, regional, national, comparative, or thematic and include other intersectional vectors of identity and representation such as race and ethnicity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**114. Introduction to Lesbian, Gay, Bisexual, Transgender, and Queer Studies (5)** (Same as Gender Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, transgendered, and queer people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

**115. Topics in Study of Sexual and Gender Orientation (4)** (Same as Gender Studies M115.) Lecture/discussion, three hours. Prerequisite: course M114 or Gender Studies 10. Studies in arts, humanities, social sciences, and/or life sciences on aspects of sexual orientation, gender identity, and lesbian, gay, and/or bisexual issues; variable topics may include cultural representations, historical and political change, life and health experiences, and queer or transgender theories; multiethnic and cross-cultural emphases. May be repeated for credit. Letter grading.

**116. Sexuality and City: Queer Los Angeles (4)** (Same as Gender Studies M116.) Lecture, three hours. Prerequisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles.

**118. Queering American History (4)** (Same as Gender Studies M118.) Lecture, four hours. Enforced prerequisite: one prior lesbian, gay, bisexual, and transgender studies course. History of sexual and gender minorities in U.S. Topics include changing norms, romantic friendships, medical discourse, liberation politics, post-Stonewall culture, AIDS, transgender movement, queer theory, and politics. P/NP or letter grading.

**125. Exploring Intersections of Ability and Sexuality (4)** (Same as Disability Studies M125.) Lecture, three hours. Exploration of identity as means of understanding cultural formations, dominant/nondominant power dynamics, and systems of visual representation. Intersectional approach to explore how ability and sexuality intersect, overlap, and change notions of identity. Use of scholarly texts from disability studies, lesbian, gay, bisexual, and transgender studies, popular culture, performance, and film to investigate factors that shape ability and sexuality as basis for identity. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**126. Feminist and Queer Theory (5)** (Same as English M126 and Gender Studies M126.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3. Recommended: one course from English 120, 121, Gender Studies 102, 103, or 104. Investigation of key concepts and debates in study of gender, sexuality, and kinship, with focus on their interrelated significance for making of culture. Readings to be interdisciplinary, with possible emphasis on impact of changing ideas of gender and sexuality on specific historical cultures. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**132. Border Consciousness (4)** (Same as Chicana/o and Central American Studies M132.) Lecture, three hours; discussion, one hour (when scheduled). Investigation through history, popular culture, and mass media of bilingual and bicultural identities produced by geographical and cultural space between Mexico and U.S. Special attention to border consciousness as site of conflict and resistance. Letter grading.

**133. Chicana Lesbian Literature (4)** (Same as Chicana/o and Central American Studies M133 and Gender Studies M133.) Lecture, four hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of familia in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

**135. Bilingual Writing Workshop (4)** (Same as Chicana/o and Central American Studies CM135 and Gender Studies M135C.) Seminar, four hours. Limited to juniors/seniors. Writing sample required; access to course web page mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression through genre of short fiction. Bilingualism as both politics and aesthetics to be central theme. Discussion and analysis of Chicana/Chicano and Latina/Latino short story collections. Peer critique of weekly writing assignments. Emphasis on narrative techniques such as characterization, plot, conflict, setting, point of view, and dialogue, and magical realism as prevailing Chicanesque/Latinesque style. Some attention to process of manuscript preparation, public reading, and publication. Letter grading.

**136. Censored! Art on Trial (4)** (Same as Chicana/o and Central American Studies M136.) Lecture, four hours. Examination of censorship in visual arts, particularly art of queer Chicana/Chicano and Latina/Latino artists such as Alma Lopez, Ester Hernández, and Alex Donis. Other censored artists include feminist artist Yolanda López, queer artists Robert Mapplethorpe and David Wojnarowicz, painter Christ Offili, photographers Sally Mann and Andres Serrano, printmaker Enrique Chagoya, muralist Noni Olabisi, writer Salman Rushdie, and four performance artists—Karen Finley, Tim Miller, John Fleck, and Holly Hughes—whose work was vetoed by chair of National Endowment for Arts (NEA) in 1990 after they had successfully passed through NEA's peer review process and who came to be known as NEA Four. P/NP or letter grading.

**137. Lesbian, Gay, Bisexual, Transgender, and Queer Perspectives in Pop Music (5)** (Same as Musicology M137.) Lecture, four hours; discussion, one hour. Survey of English-language popular music in 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

**141. African American Women's History (4)** (Same as African American Studies M141.) Lecture, four hours. Historical examination of black women's experiences in U.S. from antebellum era to present. By situating black women's experiences within major historical transitions in American history, exploration of key themes, including gender formation, sexuality, labor and class, collective action, gender and sexual violence, reproduction, and role of law. How have intersecting forms of oppression impacted black women's historical lives? How is difference constructed through interrelated and overlapping ideologies of race and gender? How do historians uncover black women's historical lives and what are challenges to such discoveries? Examination of black women's individual and collective struggles for freedom from racism, sexism, and heteropatriarchy, as well as black women's participation in and challenge to social movements, including suffrage, women's liberation, civil rights, and black power. Investigation of black women's intellectual history including their cultural productions. Letter grading.

**142. Race, Gender, and Punishment (4)** (Same as African American Studies M142.) Seminar, four hours. Interdisciplinary examination of historical and contemporary development of modern prison industrial complex in U.S., with attention to impact of prison industrial complex on immigrants, including undocumented residents, homeless populations, women, African Americans, and transgender nonconforming and lesbian, gay, bisexual, and transgender communities. Why does U.S. have largest prison population in world? What historical conditions and ideologies gave rise to this massive explosion in U.S. prisoner population? What policies have fueled mass imprisonment? Who is imprisoned? How have politicians used imprisonment as response to economic transformations and perceived social disorders? How is current crisis analogous to or distinct from regimes of racialized punishment in prior historical moments? Letter grading.

**147A. Psychology of Lesbian Experience (4)** (Same as Gender Studies M147A and Psychology M147A.) Lecture, two hours; discussion, one hour. Prerequisite: course M114 or Gender Studies 10 or Psychology 10. Designed for juniors/seniors. Review of research and theory in psychology and gender studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

**165SL. Queer Activism and Engagement (4)** Lecture, three hours; fieldwork, five hours. Benefits students pursuing minor in Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Studies, those passionate about social justice, or those who want to learn new skills about community engagement. Offers opportunity to work in LGBTQ-related community organizations, to reflect on political and theoretical issues involved in such work and such organizations, and to draw ideas from various courses they have already taken and test them in settings outside UCLA. P/NP or letter grading.

**167. Contested Sexualities (4)** (Same as Gender Studies M167.) Lecture, three hours; discussion, one hour. Sociological perspectives on formation, control, and resistance of lesbian, gay, bisexual, and transgendered people. Variable topics include identity and community; age, class, gender, and racial diversity; and analysis of contemporary issues affecting contested sexualities. Letter grading.

**170. Queer Cultures after Stonewall: Sexual Dissidence, Performance, and Community in 1970s (5)** Lecture, four hours. Exploration of intense burst of culture-making among lesbians and gay men in U.S. and Canada in decade following Stonewall Rebellion in literature and performing arts through formal and thematic analysis, exploration of social contexts of creation and reception, and wide-ranging interpretive study. No extensive training in literary, musical, visual, or media analysis is required; conceptual and analytical frameworks to be used are provided. P/NP or letter grading.

**180XP. Lesbian, Gay, Bisexual, and Transgender Institutions and Organizations (4)** (Formerly numbered 180SL.) Lecture, three hours; fieldwork, five hours. Preparation: one prior lesbian, gay, bisexual, and transgender studies course. Service-learning course that offers opportunity for students to work in lesbian, gay, bisexual, and transgender-related community organizations, to reflect on political and theoretical issues involved in such work and such organizations, and to draw ideas from various courses they have already taken and test them in settings outside UCLA. P/NP or letter grading.

**181. Variable Topics in Queer Diversities (4)** Lecture, four hours. Study of topics about queer diversities from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

**182. Variable Topics in Education, Law, and Public Policy (4)** Lecture, four hours. Study of law, education, and public policy topics from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

**183. Variable Topics in Queer Subjectivities/Theories/History (4)** Lecture, four hours. Study of topics about queer subjectivities/theories/history from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

**184. Variable Topics in Science, Health, and Genetics (4)** Lecture, four hours. Study of science, health, and genetics topics from lesbian, gay, bisexual, and transgender studies perspective. May be repeated for credit with consent of instructor. P/NP or letter grading.

**187. Selected Topics in Lesbian, Gay, Bisexual, and Transgender Studies (4)** Lecture, four hours. Study of selected topics in lesbian, gay, bisexual, and transgender studies. Consult Schedule of Classes for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191D. Topics in Queer Literatures and Cultures (5)** (Same as English M191D and Gender Studies M191D.) Seminar, three or four hours. Enforced prerequisite: English Composition 3. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**191E. Topics in Gender and Sexuality (5)** (Same as English M191E and Gender Studies M191E.) Seminar, three or four hours. Enforced prerequisite: English Composition 3. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**194. Research Group or Internship Seminars: Lesbian, Gay, Bisexual, and Transgender Studies (4)** Seminar, two hours. Preparation: completion of four courses toward minor. Prerequisite: course M114. Corequisite: course 195. Designed for seniors who are doing internship in lesbian, gay, bisexual, or transgender organization. Discussion of organization theoretical and political issues in context of internship and relation of those issues to ideas explored in minor courses already taken. May be repeated for credit. P/NP grading.

**195. Community or Corporate Internships in Lesbian, Gay, Bisexual, and Transgender Studies (2)** Tutorial, one hour. Preparation: completion of four courses toward minor. Prerequisite: course M114. Corequisite: course 194. Limited to seniors. Internship in supervised setting in lesbian, gay, bisexual, or transgender community organization. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in Lesbian, Gay, Bisexual, and Transgender Studies (2 to 4)** Tutorial, one hour. Prerequisite: course M114. Limited to juniors/seniors. Directed program of independent study or research on specific topic within lesbian, gay, bisexual, and transgender studies, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Life Sciences

## Life Sciences Courses

### Lower Division

**3H. Introduction to Molecular Biology (Honors) (5)** Lecture, two and one half hours; discussion, 90 minutes; movie section, two and one half hours. Enforced prerequisites: course 2, and Chemistry 14C or 30A. Honors course parallel to course 3, but at a more advanced level. Letter grading.

**4A. Collaborative Learning Workshop (1)** Lecture, two hours. Enforced corequisite: course 4. Development of problem-solving skills and intuition in genetics in collaborative learning environment. P/NP grading.

**7A. Cell and Molecular Biology (5)** Lecture, three hours; discussion, 75 minutes. Introduction to basic principles of cell structure and cell biology, biochemistry, and molecular biology. P/NP or letter grading.

**7B. Genetics, Evolution, and Ecology (5)** Lecture, three hours; laboratory, 80 minutes. Enforced prerequisite: course 7A. Principles of Mendelian inheritance and population genetics. Introduction to principles and mechanisms of evolution by natural selection, population, behavioral, and community ecology, and biodiversity, including major taxa and their evolutionary, ecological, and physiological relationships. Letter grading.

**7C. Physiology and Human Biology (5)** Lecture, three hours; discussion, 75 minutes. Enforced prerequisite: course 7B. Organization of cells into tissues and organs and principles of physiology of organ systems. Introduction to human genetics and genomics. Letter grading.

**7L. Introduction to Laboratory and Scientific Methodology (3)** (Formerly numbered 23L.) Lecture, one hour; laboratory, three hours. Prerequisite: course 7B. Recommended to be taken concurrently with course 7C. Introductory life sciences laboratory designed for undergraduate students. Opportunity to conduct wet-laboratory and cutting-edge bioinformatics laboratory experiments. Students work in groups of three conducting experiments in areas of physiology, metabolism, cell biology, molecular biology, genotyping, and bioinformatics. Letter grading.

**15. Life: Concepts and Issues (5)** Lecture, two and one half hours; discussion, 75 minutes. Introduction to important concepts and issues in the field for non-life sciences majors. Topics include chemistry of life, genetics, physiology, evolution, and ecology—all explored in lecture and debates, with writing component. P/NP or letter grading.

**15L. Life: Concepts and Issues Laboratory (1)** Laboratory, two hours. Prerequisite or corequisite: course 15. Broad introduction to biology, with focus on scientific literacy and thinking. Topics include scientific thinking and decision making to interpret and analyze data, evolution and genetics, physiology (chemistry, nutrition, reproduction, endocrinology, and neurobiology), and human behavioral biology. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Quantitative Concepts for Life Sciences (5)** Lecture, three hours; discussion, two hours. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Introduction to variety of quantitative concepts that are relevant to biology. Designed to enhance quantitative skills that are essential for success in life sciences, chemistry, mathematics, and physics courses that make up core curriculum for life sciences majors at UCLA. Biological examples used throughout to gain appreciation of relevance of mathematics to biology. Letter grading.

**30A. Mathematics for Life Scientists (5)** Lecture, three hours; laboratory, two hours. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Mathematical modeling as tool for understanding dynamics of biological systems. Fundamental concepts of single-variable calculus and development of single- and multi-variable differential equation models of dynamical processes in ecology, physiology, and other subjects in which quantities change with time. Use of free computer program Sage for problem solving, plotting, and dynamical simulation in laboratory. Letter grading.

**30B. Mathematics for Life Scientists (5)** Lecture, three hours; laboratory, two hours. Enforced prerequisite: course 30A. Introduction to concept of matrices and linear transformations to equip students with some basic tools to understand dynamics of multivariable nonlinear systems. Examples from ecological, physiological, chemical, and other systems. Letter grading.

**32. Essential Calculus for Mathematical Biologists (4)** (Same as Computational and Systems Biology M32 and Mathematics M32T.) Lecture, three hours; discussion, one hour. Prerequisites: courses 30A, 30B. Not open to students with credit for Mathematics 31A, 31B, 32A, or 32B. Designed for life sciences students. Methods and results of single and multivariable calculus essential for quantitative training in biology. Limits, differentiation (single and several variables), optimization, integration and methods of integration, Taylor polynomials and applications to approximation, Taylor and other power series, vector valued functions, gradients, and Lagrange multipliers. P/NP or letter grading.

**40. Statistics of Biological Systems (5)** Lecture, three hours; laboratory, two hours. Prerequisite: course 30A. Designed for life sciences students. Introduction to statistics with emphasis on computer simulation of chance probabilities as replacement for traditional formula-based approach. Simulations allow for deeper understanding of statistical concepts, and are applicable to wider class of distributions and estimators. Students learn simple programming language to carry out statistical simulations, and apply them to classic problems of elementary statistics. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Life Sciences. (1 to 4)** Seminar, two to four hours. Current issues in research and/or development in life sciences. Consult Schedule of Classes for topics and instructors. May be repeated once for credit with consent of instructor. P/NP or letter grading.

**98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors (1)** Seminar, three hours. Corequisite: associated undergraduate lecture course in life sciences. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

**98XB. PEERS Collaborative Learning Workshops for Life Sciences Majors (1)** Seminar, three hours. Corequisite: associated undergraduate lecture course in life sciences. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Understanding Scientific Literature and Context. (2 to 4)** Seminar/discussion, one to two hours. Introduction to set of skills proven to help students read and understand scientific research papers. Offers opportunity to practice those skills while interacting with scientists at UCLA. Reading and understanding scientific research papers is skill. It can develop quickly and be refined/practiced for rest of scientific journey. Uses CREATE learning framework, Consider, Read, Elucidate hypotheses, Analyze and interpret data, and Think of next Experiment. At UCLA, CREATESS! uses additional dimensions of final Synthesis and Social context. Students work within learning pod and are guided by lead instructors. P/NP or letter grading.

**107. Genetics (5)** Lecture, three hours; discussion, 75 minutes. Prerequisites: courses 7C, 23L, Chemistry 14A (or 20A), 14C (or 30A). Not open for credit to students with credit for course 4. Advanced Mendelian genetics, recombination, biochemical genetics, mutation, DNA, genetic code, gene regulation, genes in populations. Letter grading.

**110. Career Exploration in Life Sciences (2)** Seminar, two hours. Recommended for all students interested in exploring career options in life sciences, including incoming transfers. Designed to increase confidence and skills, and expand awareness through self-reflection and guest speakers. Networking, interviewing, résumé, and cover letter building. P/NP grading.

**130. Science Classroom Observation and Participation (1)** Seminar, one hour. Preparation: completion of three mathematics and/or science courses at level required of science majors. Observation, participation, and assisting in science classes at elementary, middle, and secondary schools. May be repeated for credit. P/NP grading.

**174. Health Disparities (4)** (Same as Psychology M174.) Lecture, three hours. Examination of health disparities and ways in which societal responses to race and ethnicity in combination with variety of other factors create differential quality and access to healthcare resulting in poor health outcomes in racial/ethnic minorities. Basic foundation for critical thinking about assumptions that shape life sciences, medical research, clinical practice, and social and behavioral sciences as they relate to racial and ethnic minority populations and to teach students to integrate concepts of culture and health disparities into other social, biological, political, psychological, genetic, and clinical health interests. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**192A. Introduction to Collaborative Learning Theory and Practice (1)** (Formerly numbered 192A.) (Same as Atmospheric and Oceanic Sciences M192A, Chemistry M192E, Computer Science M192A, Mathematics M192A, and Physics M192S.) Seminar, one hour. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. Letter grading.

**192B. Methods and Application of Collaborative Learning Theory in Life Sciences (3)** Seminar, one hour; clinic, six hours. Prerequisites: course 192A (may be taken concurrently) and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated three times for credit. Combination of courses 192B, 192C, 192D, and 192E may not be taken for more than total of 4 times or 4 courses. Letter grading.

**192C. Methods and Application of Collaborative Learning Theory in Life Sciences (4)** Seminar, three hours; clinic, nine hours. Prerequisites: course 192A (may be taken concurrently) and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated three times for credit. Combination of courses 192B, 192C, 192D, and 192E may not be taken for more than total of 4 times or 4 courses. Letter grading.

**192D. Methods and Application of Collaborative Learning Theory in Life Sciences (2)** Seminar, three hours; clinic, three hours. Requisites: course 192A (may be taken concurrently) and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated three times for credit. Combination of courses 192B, 192C, 192D, and 192E may not be taken for more than total of 4 times or 4 courses. Letter grading.

**192E. Methods and Application of Collaborative Learning Theory in Life Sciences (1)** Seminar, one hour; clinic, two hours. Requisites: course 192A (may be taken concurrently) and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated three times for credit. Combination of courses 192B, 192C, 192D, and 192E may not be taken for more than total of 4 times or 4 courses. Letter grading.

**192F. Undergraduate Practicum in Life Sciences (4)** Seminar, two hours; clinic, nine hours. Requisite: one course from 1, 2, 3, 4, 7A, 7B, 7C, 20, 23L, 30A, 30B, 107, 110. Limited to sophomores/juniors/seniors. Advanced training and supervised practicum for experienced undergraduate students. Under guidance of faculty members, students refine their professional skills and take leadership roles in mentoring students. May be repeated for credit. Letter grading.

**192G. Collaborative Learning Theory and Practice: Anti-Racism Discourse (1)** Seminar, two hours; discussion, one hour. Students engage in anti-racism discourse. Peers circulate through, engage, and reflect on various topics that target systemic racism surrounding our communities through proactive small-group conversation and weekly action plans. Peers practice communication skills with frequent assessment and feedback with facilitators. May be repeated three times for credit. Letter grading.

**199. Directed Research or Senior Project in Life Sciences (2)** Tutorial, two hours. Enforced requisite: course 3. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper/project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**495. Preparation for College-Level Teaching in Life Sciences (2)** Seminar, two hours. Corequisite: course 375. Designed for graduate students who are teaching assistants in Life Sciences Core Curriculum for first time and to be taken concurrently in term in which they teach. Prepares students for college-level teaching in large enrollment undergraduate courses, and provides professional development to support students pursuing diverse careers in life sciences. Study of inclusive, student-centered, and evidence-based teaching methodologies that include active learning, group work, formative assessment, backward course design, and reflective teaching practices that incorporate peer observations and constructive feedback. May not be repeated for credit. S/U grading.

## Linguistics

## American Sign Language Courses

### Lower Division

**1. Elementary American Sign Language (5)** Lecture, five hours. Introduction to fundamentals of American sign language. P/NP or letter grading.

**2. Elementary American Sign Language (5)** Lecture, five hours. Enforced requisite: course 1. Introduction to fundamentals of American sign language. P/NP or letter grading.

**3. Elementary American Sign Language (5)** Lecture, five hours. Enforced requisite: course 2. Introduction to fundamentals of American sign language. P/NP or letter grading.

**4. Intermediate American Sign Language (5)** Lecture, five hours. Enforced requisite: course 3 or 8. Intermediate American sign language. P/NP or letter grading.

**5. Intermediate American Sign Language (5)** Lecture, five hours. Enforced requisite: course 4. Intermediate American sign language. P/NP or letter grading.

**6. Intermediate American Sign Language (5)** Lecture, five hours. Enforced requisite: course 5. Intermediate American sign language. P/NP or letter grading.

**8. Intensive Elementary American Sign Language (15)** Lecture, 20 hours. Not open to students with credit for course 3 or students who have learned, from whatever source, enough American sign language to qualify for more advanced courses. Intensive elementary instruction in American sign language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M115. Enforcing Normalcy: Deaf and Disability Studies (4)** (Same as Disability Studies M115.) Lecture, three hours. Exploration of historical, medical, social, political, philosophical, and cultural influences that have constructed categories of normalcy, disability, and deafness. Building on writing of Michel Foucault and critical work in field of disability studies, inquiry into institutions that have enforced standards of normalcy throughout 19th and 20th centuries to present. Primary attention to rise of medical authority in West, history of eugenics, and contemporary bioethics issues confronting disability and deaf communities. P/NP or letter grading.

**120. History of Deaf Communities in America (4)** (Same as History M147E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of history and culture of deaf communities in America (circa 1800 to present) by exploring major events impacting deaf people, including development of sign language, deaf education, audism, politics of deafness, eugenics, deaf revolution movements, and role of hearing technology. Historical development of emergence, growth, and survival of America's deaf community and development of deaf identity over time. P/NP or letter grading.

**121. History of Mass Media and Deaf Community (4)** Lecture, three hours. Historical survey of mass media (print, film, television, and Internet) as sources and interpreters of deafness and deaf people within context of U.S. social and cultural history. Examination of historical changes in products of mass media within deaf community and ways of critiquing media sources. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Linguistics Courses

### Lower Division

**1. Introduction to Study of Language (5)** Lecture, three hours; discussion, one hour. Summary for general undergraduates of what is known about human language; biological basis of language, scientific study of language and human cognition; uniqueness of human language, its structure, universality, its diversity; language in social and cultural setting; language in relation to other aspects of human inquiry and knowledge. P/NP or letter grading.

**2. Language in U.S. (5)** Lecture, four hours; discussion, one hour (when scheduled). Survey of languages of U.S. (American Indian languages, oldest immigrant languages, ethnic and regional varieties of English, and newest arrival languages) and social and political aspects of American language use. P/NP or letter grading.

**3. American Sign Language: Structure and Culture (5)** Lecture, four hours; discussion, one hour (when scheduled). Knowledge of American Sign Language (ASL) not required. Introduction to principles of linguistics through study of structure of American Sign Language and culture of deaf Americans. Phonology, morphology, syntax of ASL, historical change, signed language universals, education, identity, and ASL literature. P/NP or letter grading.

**4. Language and Evolution (5)** (Same as Indo-European Studies M70.) Lecture, three hours; discussion, one hour. Homo Sapiens is only species on Earth with capacity to create infinite number of utterances from small inventory of speech sounds. How and why our species developed this ability is question of fundamental scientific and humanistic importance. Survey of origin of human language from number of intellectual perspectives, including linguistics, anthropology, and evolutionary biology. Exploration of relationship between language faculty and linguistic theory. P/NP or letter grading.

**5. World Languages (5)** Lecture, four hours; discussion, one hour (when scheduled). Introduction to linguistic diversity of world and to such core areas of linguistics as study of sound production and patterning (phonetics and phonology), word formation (morphology), and sentence formation (syntax). Structural characteristics of world languages and methods of classifying languages into families and types. Detailed discussion of representative languages with audiovisual illustrations to acquaint students with distinctive features of several key language families. Discussion of such linguistic concepts as pidgins and creoles, unaffiliated languages, language contact, and language endangerment, together with related sociopolitical issues. P/NP or letter grading.

**6. Out of Mouths of Babies (4)** Lecture, six hours. How children acquire language, most complex of human cognitive achievements. Look at amazing linguistic abilities of infants and their first perception and production of speech sounds, then investigation of how children learn words and rules for producing and understanding sentences. Language acquisition in special populations such as children acquiring sign languages, bilingual children, and people acquiring language beyond critical period. Focus mainly on English, with consideration of other languages. Offered in summer only. P/NP or letter grading.

**7. Language and Identity (5)** (Same as Philosophy M24.) Lecture, four hours; discussion, one hour (when scheduled). How do we use language to project our own identity? How do we use it to perceive or shape identity of others? Introduction to speech act theory and various claims that speech act theory can account for systematic subordination of women; maligning of racial mi-

norities; and, in some cases, incitement to violence through hate speech. Provides foundation for students of linguistic theory, philosophy, sociology, anthropology, and communication studies. P/NP or letter grading.

**8. Language in Context (4)** Lecture, four hours; discussion, one hour (when scheduled). How is meaning of language influenced by world around us? Introduction to pragmatics, speech acts, ordinary language philosophy, and linguistic relativity. Good foundation for students of linguistic theory, philosophy, sociology, anthropology, and communication studies. P/NP or letter grading.

**9W. Linguistic Humor: Amusing and Abusing with Language (5)** Seminar, five hours. Requisite: English Composition 3. Study of how principles of science of linguistics are applied in analyzing language structure. Data from humor and other amusements, such as secret languages (Pig Latin and more). Introduction to basics of linguistics analysis, including language sound systems, syntactic analysis, word structure, word meaning, and pragmatics. Focus on nature of language as innate part of human biology that allows people from all cultural and linguistic backgrounds to adapt language for humorous purposes, albeit shaped by culture as to what counts as funny. Satisfies Writing II requirement. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Linguistic Analysis (5)** Lecture, four hours; discussion, one hour (when scheduled). Introduction to theory and methods of linguistics: universal properties of human language; phonetic, phonological, morphological, syntactic, and semantic structures and analysis; nature and form of grammar. P/NP or letter grading.

**40W. Language and Gender: Introduction to Gender and Stereotypes (5)** (Formerly numbered Applied Linguistics 40W.) Lecture, four hours; discussion, two hours. Enforced requisite: English Composition 3. Prior knowledge of foreign languages not required. Introduction to language from sociological perspective of gender. Use of research and examples in English and other languages to explore nature of male and female genderlects and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, and language acquisition and linguistic change. Satisfies Writing II requirement. Letter grading.

**88A. Lower-Division Seminar (4)** Seminar, three hours. Limited to freshmen/sophomores. Variable topics; consult Schedule of Classes, College of Letters and Science, or department for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**88B. Lower-Division Seminar (4)** Seminar, three hours. Limited to freshmen/sophomores. Variable topics; consult Schedule of Classes, College of Letters and Science, or department for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Linguistics. (1 to 4)** Seminar, three hours; fieldwork, two hours. Variable topics offered by departmental faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102. Introduction to Applied Phonetics (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 20. Not open for credit to students with credit for course 103. Basics of articulation and acoustics of phonetic categories used in world's languages, including English in comparison with other languages. Practice in speech-sound perception and transcription using International Phonetic Alphabet (IPA). Applications to language learning/teaching and other fields. P/NP or letter grading.



**103. Introduction to General Phonetics (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: course 20. Not open for credit to students with credit for course 102. Phonetics of variety of languages and phonetic phenomena that occur in languages of world. Extensive practice in perception and production of such phenomena. P/NP or letter grading.

**C104. Experimental Phonetics (5)** (Formerly numbered 104.) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 102 or 103. Survey of principal techniques of experimental phonetics. Use of laboratory equipment to investigate acoustic properties of speech. Topics include experimental design; theoretical basis of acoustic structure of speech sounds; computer-based speech processing and analysis. Concurrently scheduled with course C204A. P/NP or letter grading.

**105. Morphology (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: course 20. In linguistics, morphology is study of word structure. Morphological theory seeks to answer questions such as how should words and their component parts (roots, prefixes, suffixes, vowel changes) be classified crosslinguistically? how do speakers store, produce, and process complex words (words with affixes, compounds)? how do speakers know how to produce correct word forms even when they have not previously heard them and how do speakers know that particular words are well-formed or ill-formed? is there principled distinction in traditional division between inflection and derivation? how can we best account for variation in forms that are same (e.g., root in keep/kept even though vowels are different)? can we formulate crosslinguistic generalizations about word structure? P/NP or letter grading.

**110. Introduction to Historical Linguistics (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 102 or 103, 119A or 120A. Methods and theories appropriate to historical study of language, such as comparative method and method of internal reconstruction. Sound change, grammatical change, semantic change. P/NP or letter grading.

**110G. Introduction to Historical Linguistics for Graduate Students (2)** Lecture, four hours. Limited to and designed for entering linguistics graduate students to help remedy entrance deficiencies in historical linguistics. Basic historical linguistics: methods and theories appropriate to historical study of language, such as comparative methods and method of internal reconstruction. Sound change, grammatical change, semantic change. S/U grading.

**C111. Intonation (5)** (Formerly numbered 111.) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 102 or 103, and 119A or 120A or 120B. Recommended prerequisite: course C104. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Students learn to transcribe intonational elements. Concurrently scheduled with course C211. P/NP or letter grading.

**114. American Indigenous Linguistics (5)** Lecture, four hours; discussion, one hour (when scheduled). Strongly recommended preparation: course 20. Survey of genetic, areal, and typological classifications of American indigenous languages; writing systems for American indigenous languages; American indigenous languages in social and historical context. One or more languages may be investigated in detail. P/NP or letter grading.

**115. Linguistics and Speech Pathology. (2, 4)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 102 or 103. Introduction to field of speech pathology. Topics include biological foundations of speech, language, and hearing; and disorders of speech production, language, voice, and hearing, affecting children and adults. In-class presentation and final term paper required if taken for 4 units. P/NP or letter grading.

**116. Introduction to Japanese Linguistics (4)** (Same as Japanese M120.) Lecture, three hours; discussion, one hour. Enforced prerequisite: Japanese 3 or 8 or Japanese placement test. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics. Letter grading.

**119A. Applied Phonology (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 20, and 102 or 103. Not open for credit to students with credit for course 120A. Sound structures and sound patterns in world's languages. Rules, rule ordering, features, syllable, and higher structure. Comparison of sound patterns of different languages. Tools of phonology as applicable to other fields. P/NP or letter grading.

**120A. Phonology I (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 103. Introduction to phonological theory and analysis. Rules, representations, underlying forms, derivations. Justification of phonological analyses. Emphasis on practical skills with problem sets. P/NP or letter grading.

**120B. Syntax I (5)** Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: course 20. Course 120A is not requisite to 120B. Descriptive analysis of morphological and syntactic structures in natural languages; emphasis on insight into nature of such structures rather than linguistics formalization. P/NP or letter grading.

**120C. Semantics I (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 119B or 120B. Survey of most important theoretical and descriptive claims about nature of meaning. P/NP or letter grading.

**127. Syntactic Typology and Universals (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 20. Study of essential similarities and differences among languages in grammatical devices they use to signal the following kinds of concepts: relations between nouns and verbs (case and word order), negation, comparison, existence/location/possession, causation, interrogation, reflexivization, relativization, attribution (adjectives), time (tense and aspect), and backgrounding (subordination). Data from a range of languages presented and analyzed. P/NP or letter grading.

**C128A. Romance Syntax: French (4)** Lecture, four hours; discussion, one hour (when scheduled). Preparation: some knowledge of French (or one Romance language). Enforced prerequisite: course 120B. Course C128A is enforced requisite to C128B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C228A. P/NP or letter grading.

**C128B. Romance Syntax: French (4)** Lecture, four hours. Preparation: some knowledge of French (or one Romance language). Enforced requisites: courses 120B, C128A. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C228B. P/NP or letter grading.

**130. Language Development (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 119A or 120A, 119B or 120B. Survey of research and theoretical perspectives in language development in children. Discussion and examination of child language data from English and other languages. Emphasis on universals of language development. Topics include infant speech perception and production, development of phonology, morphology, syntax, and word meaning. P/NP or letter grading.

**132. Language Processing (5)** Lecture, four hours; laboratory, one hour (when scheduled). Requisites: courses 20, 119A or 120A, 119B or 120B. Central issues in language comprehension and production, with emphasis on how theories in linguistics inform processing models. Topics include word understanding (with emphasis on spoken language), parsing, anaphora and inferring, speech error models of sentence production, and computation of syntactic structure during production. P/NP or letter grading.

**C135. Neurolinguistics (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 119A or 120A, 119B or 120B. Examination of relationship between brain, language, and linguistic theory, with evidence presented from atypical language development and language disorders in the mature brain. Topics include methodologies to investigate normal and atypical hemispheric specialization for language and children and adults with acquired and/or congenital language disorders. Concurrently scheduled with course C235. P/NP or letter grading.

**C140. Bilingualism and Second Language Acquisition (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 119A or 120A, 119B or 120B. Introduction to study of childhood bilingualism and adult and child second language (L2) acquisition, with focus on understanding nature of L2 grammar and grammatical processes underlying L2/bilingual acquisition. Discussion of neurolinguistic and social aspects of bilingualism. Concurrently scheduled with course C244. P/NP or letter grading.

**141. Current Methods of Language Teaching (5)** (Same as English Composition M141.) Lecture, four hours; discussion, one hour. Enforced prerequisite: course 20. Survey of theory and practice in teaching second languages, including (1) past and present methods used to teach second languages, (2) current theory and practice underlying skills-based instruction and integrated approaches, and (3) factors that affect second language acquisition and learning. Development of knowledge base in and rational base for design, development, implementation, and evaluation of second language instruction programs. P/NP or letter grading.

**144. Fundamentals of Translation and Interpreting (5)** Lecture, four hours; discussion, one hour. Recommended preparation: knowledge of English and at least one other language. Enforced prerequisite: course 20. Examination of salient lexical, structural, cultural, and social aspects of translating and interpreting between two languages or dialects. Survey of development of translation theories and rise of community interpreting and critical role of language brokering. P/NP or letter grading.

**146. Language in Culture (5)** (Same as Anthropology M150.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Requisite: course 20 or Anthropology 4. Study of language as aspect of culture; relation of habitual thought and behavior to language; and language and classification of experience. Holistic approach to study of language, with emphasis on relationship of linguistic anthropology to fields of biological, cultural, and social anthropology, as well as archaeology. P/NP or letter grading.

**150. Introduction to Indo-European Linguistics (5)** (Same as Indo-European Studies M150.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 1 or 20. Indo-European languages (ancient and modern), including their relationships, chief characteristics, writing systems, and sociolinguistic contexts; nature of reconstructed Indo-European proto-language and proto-culture. One or more Indo-European languages may be investigated in detail. P/NP or letter grading.

**160. Field Methods (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 102 or 103, 119A or 120A, 119B or 120B. Analysis of language unknown to members of class from data elicited from native speaker of that language. P/NP or letter grading.

**161. Language Documentation (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20 (enforced), and 105 or 119A or 120A. Issues in documenting languages, including collection of primary data using linguistic field methods, organizing data into documents (annotated texts, dictionaries, multimedia presentations, technical articles), audiences for language documents (speakers of target languages, linguists, scholars outside linguistics, general public), presentation and storage of documents (paper publication, online publication, electronic and physical archives), documenting endangered languages, and organizations and initiatives for documenting endangered languages. Presentations focus on case studies. Student projects in assembling primary data and creating annotated texts with commentary. P/NP or letter grading.

**165A. Phonology II (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120A. To be taken in term following completion of course 120A or as soon as possible thereafter. Further study in phonological theory and analysis: autosegmental theory, syllable structure, metrical theory, interface of phonology and grammar. P/NP or letter grading.

**165B. Syntax II (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120B. To be taken in term following completion of course 120B or as soon as possible thereafter. Recommended for students who plan to do graduate work in linguistics. Form of grammars, word formation, formal and substantive universals in syntax, relation between syntax and semantics. P/NP or letter grading.

**165C. Semantics II (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 120C. Recommended for students who plan to do graduate work in linguistics. Further study in relevant logics, relations between sentences, lexical semantics, tense and aspect, adverbs, modality and intensionality. P/NP or letter grading.

**170. Language and Society: Introduction to Sociolinguistics (5)** (Formerly numbered M170.) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 20. Study of patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies. P/NP or letter grading.

**175. Linguistic Change in English (5)** Lecture, four hours. Requisites: courses 110, 120A, 120B. Principles of linguistic change as exemplified through detailed study of history of English pronunciation, lexicon, and syntax. P/NP or letter grading.

**176A. Japanese Phonology and Morphology (4)** (Same as Japanese CM122.) Lecture, three hours; discussion, one hour. Recommended preparation: course 20. Enforced requisite: Japanese 3 or 8 or Japanese placement test. Survey of Japanese phonetics, phonology, and morphology. Letter grading.

**176B. Structure of Japanese (4)** (Same as Japanese CM123.) Lecture, three hours; discussion, one hour. Enforced requisite: Japanese 4 or 10 or Japanese placement test. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Letter grading.

**177. Structure of Korean (4)** (Same as Korean CM120.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Letter grading.

**178. Contrastive Analysis of Japanese and Korean (4)** (Same as Japanese CM127 and Korean CM127.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese and knowledge of Hangul, or two years of Korean and knowledge of Hiragana. Prior linguistic background also recommended. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. Letter grading.

**180. Mathematical Structures in Language I (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 119B or 120B. Recommended: Philosophy 31. Prior mathematics knowledge not assumed. Mathematical introduction to phonology, syntax, and semantics. Elementary material on logic, sets, functions, relations, and trees. P/NP or letter grading.

**185A. Computational Linguistics I (5)** Lecture, four hours; laboratory, one hour. Requisites: courses 120B, Program in Computing 10C (or Computer Science 32). Recommended: course 165B or 200B. Overview of formal computational ideas underlying kinds of grammars used in theoretical linguistics and psycholinguistics, and some connections to applications in natural language processing. Topics include recursion, relationship between probabilities and grammars, and parsing algorithms. P/NP or letter grading.

**185B. Computational Linguistics II (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 185A. Extension of material in course 185A, with emphasis on computational analysis of current tools and frameworks used in linguistic theory and their cognitive interpretations. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Linguistics (4)** Seminar, three hours. Requisite: course 1 or 20. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**191B. Variable Topics Research Seminars: Linguistics. (2, 4)** Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

**192A. Undergraduate Practicum in Linguistics (4)** Seminar, seven hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in linguistics courses. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. May not be applied toward course requirements for any Linguistics Department major. Individual contract required. Information and contracts may be obtained from Linguistics Department. P/NP grading.

**192B. Undergraduate Practicum in Linguistics (2)** Seminar, six hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in linguistics courses. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. May not be applied toward course requirements for any Linguistics Department major. Individual contract required. Information and contracts may be obtained from Linguistics Department. P/NP grading.

**194. Research Group Seminars: Laboratory Research in Linguistics. (1 to 2)** Seminar, one hour; laboratory, three to six hours. Students actively participate in experimental, computational, or fieldwork linguistics research, and have opportunity to learn variety of research methods in laboratory or other collaborative environment. Students may be involved in various kinds of research

methods, including administering experiments, data analysis, and/or participating in corpus annotation. Students are expected to attend regular laboratory meetings, if offered. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. P/NP grading.

**195. Community or Corporate Internships in Linguistics. (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to junior/senior majors. Internship in supervised setting in community agency or business related to linguistics and/or applied linguistics. Students meet on regular basis with instructor and provide periodic reports of their experience. Additional supervision to be provided by internship site supervisor. Individual contract with supervising faculty member required. P/NP grading.

**197. Individual Studies in Linguistics. (2 to 4)** Tutorial, four hours. Requisite: course 1 or 20. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Linguistics I (4)** Tutorial, to be arranged. Preparation: 3.5 grade-point average. Requisite or corequisite: course 165A (or 200A) or 165B (or 200B). Recommended: completion of both courses 165A and 165B (or 200A and 200B) before or during term in which course 198A is taken. Limited to juniors/seniors. Development of honors thesis or comprehensive research project on linguistic topic selected by student under direct supervision of faculty member. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Linguistics II (2)** Tutorial, to be arranged. Requisite: course 198A. Limited to juniors/seniors. Completion of honors thesis or comprehensive research project begun in course 198A under direct supervision of faculty member. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Linguistics (4)** Tutorial, to be arranged. Limited to senior Linguistics majors. Supervised individual research or investigation of linguistic topic selected by student under guidance of faculty mentor. Culminating paper required. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Phonological Theory I (4)** Lecture, four hours. Preparation: graduate linguistics student or grade of A in course 120A or equivalent course in phonology. Courses 200A and 201A form two-course survey of current research in phonological theory. Interaction of phonology with morphology and syntax, syllable structure, stress. S/U or letter grading.

**200B. Syntactic Theory I (4)** Lecture, four hours. Preparation: graduate linguistics student or grade of A in course 120B or equivalent course in syntax. In-depth introduction to selected topics in theory of constituent structure and syntax of predicates, arguments, and grammatical relations. Topics include levels of representation, X-bar theory, case theory, thematic roles, the lexicon, grammatical function-changing rules, head-complement relations. S/U or letter grading.

**200C. Semantic Theory I (4)** Lecture, four hours. Overview of current results and research methods in linguistic semantics. Topics include generalized quantifiers and semantic universals, predicate argument structures, variable binding and pronominalization, formal semantic interpretation, syntax and LF, tense, ellipsis, and focus. Letter grading.

**201A. Phonological Theory II. (2, 4)** Lecture, four hours. Requisite: course 200A. Continuation of course 200A. Second course in two-course survey of current research in phonological theory. Topics include autosegmentalism (tone, tiers, segment structure), feature theory, underspecification, prosodic morphology. S/U (2-unit course) and S/U or letter (4-unit course) grading.

**201B. Syntactic Theory II. (2, 4)** Lecture, four hours. Requisite: course 200B. In-depth introduction to selected topics in theory of movement processes and topics selected from following areas: WH-movement and related rules, subadjacency and other constraints on movement; ECP and related conditions on distribution of empty categories; resumptive pronoun constructions; parametric variation in movement constructions; LF WH-movement; filters; reconstruction; parasitic gaps; barriers theory; control theory; null subject parameter. S/U (2-unit course) and S/U or letter (4-unit course) grading.

**201C. Semantic Theory II. (2, 4)** Lecture, four hours. Requisite: course 200C. Survey of current approaches to model-theoretic semantics and its relation to current linguistic theory. Approaches include generalized categorial gram-

mars, Montague grammar, Boolean-based systems, generalized quantifier theory, logical form. S/U (2-unit course) and S/U or letter (4-unit course) grading.

**202. Language Change (4)** Prerequisites: courses 110, 200A, 200B. Survey of current theories and research problems in language change.

**203. Phonetic Theory (4)** Prerequisite: course 120A. Preliminaries to speech analysis. Functional anatomy of vocal organs; fundamental principles of acoustics and of acoustic theory of speech production; issues in perception of speech; nature and design of feature systems for phonetic and phonological analysis. C204A.

**Experimental Phonetics (5)** (Formerly numbered 204A.) Lecture, four hours; discussion, one hour (when scheduled). Requisite: course 102 or 103. Survey of principal techniques of experimental phonetics. Use of laboratory equipment to investigate acoustic properties of speech. Topics include experimental design; theoretical basis of acoustic structure of speech sounds; computer-based speech processing and analysis. Concurrently scheduled with course C104. S/U or letter grading.

**204B. Speech Production (4)** Lecture, three hours; laboratory, one hour. Requisite: course 104 or 204A. Survey of topics in speech production research, especially as related to linguistic phonetics. Topics include physiology of vocal tract and models of speech production and articulatory/acoustic relations. Emphasis on use of laboratory methods such as aerodynamic transducers, electroglottography, static and electropalatography, electromagnetic articulography, and imaging techniques. S/U or letter grading.

**204C. Speech Perception. (2 to 4)** Lecture, four hours. Recommended requisite: course 104 (or 204A) or 111 (or 211). Limited to graduate students. Survey of topics in speech perception research. Topics include auditory physiology and psychophysics, categorical speech perception, and cross-linguistic speech perception and word recognition. Emphasis on use of experimental methods such as lexical decision, gating, priming, eye tracking, phoneme monitoring, and word spotting. S/U or letter grading.

**205. Morphological Theory (4)** Requisites: courses 200A, 200B. Survey of current theories and research problems in morphology. Nature of morphological structure; derivational and inflectional morphology; relation of morphology to phonology, syntax, and the lexicon.

**207. Pragmatic Theory. (2, 4)** Lecture, four hours. Requisites: courses 200C, 201C. Introduction to formal pragmatic theory. Topics include speech act theory, imperatives, and other illocutionary moods; at-issue/not-at-issue distinction and other projective content; Gricean implicature, conversational implicature, and local implicature; and formal treatments of discourse, including game-theoretic pragmatics. S/U or letter grading.

**208. Mathematical Structures in Language I (5)** Lecture, four hours; discussion, one hour. Requisite: course 120B. Recommended: Philosophy 31. Prior mathematics knowledge not assumed. Mathematical introduction to phonology, syntax, and semantics. Elementary material on logic, sets, functions, relations, and trees. S/U or letter grading.

**209A. Computational Linguistics I (5)** Lecture, four hours; laboratory, one hour. Overview of formal computational ideas underlying kinds of grammars used in theoretical linguistics and psycholinguistics. Themes include role of recursion, relationship between structure and interpretation (both PF and LF), relationship between grammars and probabilities, and relationship between derivations and parsing. S/U or letter grading.

**209B. Computational Linguistics II (5)** Lecture, four hours; laboratory, one hour. Requisite: course 209A. Extensions of basic language processing techniques to natural language processing. Recent models of syntactic, semantic, and discourse analysis, with particular attention to their linguistic sophistication and psychological plausibility. S/U or letter grading.

**209C. Computational Semantics (4)** Lecture, four hours. Preparation: basic knowledge of semantics. Requisite: course 185A or 209A. Study of algorithms to compute and reason with meanings of sentences and texts. Phenomena such as anaphor resolution, presupposition projection, and tracking time, objects, and space to be covered. S/U or letter grading.

**210A. Field Methods I (4)** Lecture, four hours. Preparation: grade of B or better in course 103 or in examination on practical phonetics. Requisites: courses 200A, 200B. Analysis of a language unknown to members of class from data elicited from a native speaker of the language. Term papers to be relatively full descriptive sketches of the language. May be repeated for credit with topic change. S/U or letter grading.

**210B. Field Methods II (4)** Lecture, four hours. Requisite: course 210A in preceding term. Because different languages are investigated in different years, course 210B can only be taken as direct continuation of 210A in same year. When there are multiple sections, continuation must be in same section. May be repeated for credit with topic change. S/U or letter grading.

**C211. Intonation (5)** (Formerly numbered 211.) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 102 or 103, and 119A or 120A or 120B. Recommended requisite: course C204A. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Students learn to transcribe intonational elements. Concurrently scheduled with course C111. S/U or letter grading.

**212. Learnability Theory (4)** Lecture, four hours. Survey of some of most significant results on capabilities of learners, given precise assumptions about their memory, time, and computational power, and precise assumptions about information provided by environment. S/U or letter grading.

**213A. Grammatical Development (4)** Requisites: courses 200A, 200B. Recommended: course 130 or 233. Survey of theoretical perspectives and contemporary empirical research in development of syntax and other components of grammar, with particular emphasis on acquisition theory, linguistic theory, and issues of learnability.

**213B. Brain Bases for Language (4)** Requisites: courses 200A, 200B. Recommended: course C135 or C235. Survey of theoretical perspectives and contemporary empirical research in neurological and cognitive bases for language, language development, and language breakdown.

**213C. Linguistic Processing (4)** Lecture, four hours. Requisites: courses 165B and/or 200B. Recommended: courses 132 or 232, 201B. Survey of theoretical perspectives and contemporary empirical research in human processing of language (comprehension and/or production), with emphasis on syntactic processing, ambiguity resolution, effects of memory load, and relationship between grammar and processor. S/U or letter grading.

**214. Survey of Current Syntactic Theories (4)** Lecture, four hours. Requisite: course 201B. Survey of several current syntactic theories, compared with one another and with theory discussed in course 201B, from point of view of theories' relative descriptive and explanatory power. S/U or letter grading.

**215. Syntactic Typology. (2, 4)** Lecture, four hours. Requisite: course 200B. Current results in word-order universals; genetic classification of world's languages; cross-language properties of specific construction types, including relative clauses, passives, positive and negative coreference systems, agreement systems, deixis systems, and types of sentence complements. S/U or letter grading.

**216. Syntactic Theory III. (2, 4)** Lecture, four hours. Requisite: course 201B. Selected topics on syntactic theories of anaphora and quantification from the following areas: typology of binding categories (pronouns, anaphors, etc.); theory of locality conditions in binding theory; parametric variation in binding; quantifier movement; existential quantification and unselective binding; strong and weak crossover; superiority; scope interactions; complex quantifier structures. S/U (2-unit course) or letter (4-unit course) grading.

**217. Experimental Phonology (4)** Lecture, four hours. Requisite: course 200A. Survey of experimental work that bears on claims about speakers' knowledge of phonology, including theories of lexicon, relation between perception and phonology, and universal markedness relations. Letter grading.

**218. Mathematical Structures in Language II (4)** Lecture, four hours. In-depth study of generalized quantifier theory; selected topics from distinctive feature theory, formal syntax, partial orders and lattices, formal language theory, variable binding operators. May be repeated for credit with consent of instructor. S/U or letter grading.

**219. Phonological Theory III. (2, 4)** Lecture, four hours. Requisite: course 201A. Current research and issues in phonological theory. Topics include structure of phonological representations, relations between representations, architecture of grammar, and explanations for phonological typology. S/U (2-unit course) or letter (4-unit course) grading.

**220. Linguistic Areas (4)** Requisites: courses 120A, and 120B or 127. Recommended: courses 165A or 200A, 165B or 200B. Analysis and classification of languages spoken in a particular area (e.g., Africa, the Balkans, South Asia, Southeast Asia, Australia, Aboriginal North America, Aboriginal South America, Far East, etc.). May be repeated for credit with topic change.

**222. Semantic Theory III. (2, 4)** Lecture, four hours. Requisites: courses 200C, 201C. Introduction of developments in ontology of formal semantics, including plurals as formal object, events, situations, times, and degrees. Presentation of empirical motivation for these developments, and some cross-domain parallels supporting them. S/U or letter grading.

**225. Linguistic Structures (4)** Lecture, four hours. Requisites: courses 120A, and 120B or 127. Recommended: courses 165A or 200A, 165B or 200B. Phonological and grammatical structure of a selected language and its genetic relationships to others of its family. May be repeated for credit with topic change. S/U or letter grading.

**C228A. Romance Syntax: French (4)** Lecture, four hours; discussion, one hour (when scheduled). Preparation: some knowledge of French (or one Romance language). Enforced requisite: course 120B. Course C228A is enforced requi-

site to C228B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C128A. S/U or letter grading.

**C228B. Romance Syntax: French (4)** Lecture, four hours. Preparation: some knowledge of French (or one Romance language). Enforced requisites: courses 120B, C228A. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C128B. S/U or letter grading.

**230. History of Linguistics (4)** Requisites: courses 200A, 200B. Aspects of history of linguistics. Different course offerings may deal with different areas of linguistics (e.g., phonology, syntax) or with different historical periods. May be repeated for credit with topic change.

**232. Language Processing (5)** Lecture, four hours; laboratory, one hour. Central issues in language comprehension and production, with emphasis on how theories in linguistics inform processing models. Topics include word understanding (with emphasis on spoken language), parsing, anaphora and inferring, speech error models of sentence production, and computation of syntactic structure during production. S/U or letter grading.

**233. Language Development (5)** Lecture, four hours. Requisites: courses 20, 120A, 120B. Survey of research and theoretical perspectives in language development in children. Discussion and examination of child language data from English and other languages. Emphasis on universals of language development. Topics include infant speech perception and production, development of phonology, morphology, syntax, and word meaning. S/U or letter grading.

**C235. Neurolinguistics (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 20, 119A or 120A, 119B or 120B. Examination of relationship between brain, language, and linguistic theory, with evidence presented from atypical language development and language disorders in the mature brain. Topics include methodologies to investigate normal and atypical hemispheric specialization for language and children and adults with acquired and/or congenital language disorders. Concurrently scheduled with course C135. Graduate students expected to read more advanced neurolinguistic literature and produce research papers of greater depth. S/U or letter grading.

**236. Computational Phonology (4)** Lecture, four hours. Introduction to computational models of phonology and phonological acquisition. Topics include finite state machines, probabilistic automata, over-constrained models, dynamic programming methods. Letter grading.

**238. Analyzing Historical Texts (4)** (Same as History M266C and Indo-European Studies M238.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

**239. Research Design and Statistical MethodS. (2, 4)** Lecture, four hours. Topics include identifying and defining research topics, selecting appropriate research design and measurements, designing student experiments, recording, analyzing, and interpreting data. S/U or letter grading.

**C244. Bilingualism and Second Language Acquisition (5)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 119A or 120A, 119B or 120B. Introduction to study of childhood bilingualism and adult and child second language (L2) acquisition, with focus on understanding nature of L2 grammar and grammatical processes underlying L2/bilingual acquisition. Discussion of neurolinguistic and social aspects of bilingualism. Concurrently scheduled with course C140. Graduate students expected to read more advanced literature, do in-class presentation, and submit graduate-level term paper. S/U or letter grading.

**251A. Topics in Phonetics and Phonology (4)** Seminar, four hours. Requisite: course 200A. Course 201A, 203, or 204A may be required. Specialized topics in phonetics and phonology. Meets with course 251B. May be repeated for credit. Letter grading.

**251B. Topics in Phonetics and Phonology (2)** Seminar, four hours. Requisite: course 200A. Course 201A, 203, or 204A may be required. Specialized topics in phonetics and phonology. May not be applied toward MA degree requirements. Meets with course 251A. May be repeated for maximum of 8 units. S/U grading.

**252A. Topics in Syntax and Semantics (4)** Seminar, four hours. Requisite: course 200B. Course 201B, 201C, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. Meets with course 252B. May be repeated for credit. Letter grading.

**252B. Topics in Syntax and Semantics (2)** Seminar, four hours. Enforced requisite: course 200B. Course 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May not be applied toward MA degree requirements. Meets with course 252A. May be repeated for credit. S/U grading.

**253A. Topics in Language Variation (4)** Seminar, four hours. Requisite: course 110. Course 202 may be required. Specialized topics in language variation. Meets with course 253B. May be repeated for credit. Letter grading.

**253B. Topics in Language Variation (2)** Seminar, four hours. Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May not be applied toward MA degree requirements. Meets with course 253A. May be repeated for credit. S/U grading.

**254A. Topics in Linguistics (4)** Seminar, four hours. Requisites: courses 200A, 200B. Course 201A, 201B, 201C, 202, 203, 204A, 205, 208, 209A, 209B, 212, 213A, 213C, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. Meets with course 254B. May be repeated for credit. Letter grading.

**254B. Topics in Linguistics (2)** Seminar, four hours. Requisites: courses 200A, 200B. Course 201A, 201B, 201C, 202, 203, 204A, 205, 208, 209A, 209B, 212, 213A, 213C, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. May not be applied toward MA degree requirements. Meets with course 254A. May be repeated for credit. S/U grading.

**260A. Seminar: Phonetics (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**260B. Seminar: Phonetics (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**260C. Seminar: Phonetics (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**261A. Seminar: Phonology (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**261B. Seminar: Phonology (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**261C. Seminar: Phonology (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**262A. Syntax Seminar (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**262B. Syntax Seminar (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**262C. Syntax Seminar (2, 4)** Seminar, three hours. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**263. Seminar: Semantics (2, 4)** Seminar, two hours. Graduate students and faculty present ongoing work; review recent research in field; collaborate on joint projects. S/U grading.

**264A. Seminar: Psycholinguistics/Neurolinguistics (2, 4)** Seminar, three hours. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. May be taken independently for credit. May not be applied toward MA degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**264B. Seminar: Psycholinguistics/Neurolinguistics (2, 4)** Seminar, three hours. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. May be taken independently for credit. May not be applied toward MA degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**264C. Seminar: Psycholinguistics/Neurolinguistics (2, 4)** Seminar, three hours. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. May be taken independently for credit. May not be applied toward MA degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

**265A. American Indian Linguistics Seminar (1, 4)** Seminar, two hours; field-work, four hours. Presentation of research on American Indian linguistics. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 1 unit. May be repeated for credit. S/U grading.

**265B. American Indian Linguistics Seminar (1, 4)** Seminar, two hours; field-work, four hours. Presentation of research on American Indian linguistics. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 1 unit. May be repeated for credit. S/U grading.

**265C. American Indian Linguistics Seminar (1, 4)** Seminar, two hours; field-work, four hours. Presentation of research on American Indian linguistics. May be taken independently for credit. May not be applied toward MA or PhD degree requirements when taken for 1 unit. May be repeated for credit. S/U grading.

**266. Seminar: Sociolinguistics (2, 4)** Seminar, two hours. Graduate students, faculty, and visitors present ongoing work; review research in field; and prepare for conference. S/U grading.

**275. Linguistics Colloquium (4)** Preparation: completion of requirements. Varied linguistic topics, generally presentations of new research by students, faculty, and visiting scholars. S/U grading.

**276. Linguistics Colloquium (0)** Designed for graduate students. Same as course 275, but taken without credit by students not presenting a colloquium. S/U grading.

**403. Practical Phonetics Training (1)** Extensive practice in production, perception, and transcription of sounds from a wide range of languages. Concurrently scheduled with practical sections of course 103. S/U grading.

**411A. Research Orientation (2)** Designed for graduate students. Sequence of lectures by department faculty to acquaint new graduate students with research directions and resources of department and elsewhere on campus. May not be applied toward MA or PhD degree requirements. S/U grading.

**411B. Research Orientation (2)** Prerequisite: graduate standing. Sequence of lectures by department faculty to acquaint new graduate students with research directions and resources of department and elsewhere on campus. May not be applied toward MA or PhD degree requirements. S/U grading.

**422. Practicum: Phonetic Data Analysis (2)** Designed for graduate students. Workshop in examination of phonetic data, such as sound spectrograms, oscillographic records, and computer output. May not be applied toward MA or PhD degree requirements. S/U grading.

**444. MA Thesis Preparation Seminar (4)** Seminar, two hours. Regular student presentations of MA thesis topics and progress, with discussion and criticism by other students and faculty. Presentations by faculty and guest speakers on topics relevant to professional development, such as abstract writing and conference presentations, preparing manuscripts for publication, curriculum vitae and personal websites, academic and non-academic careers in linguistics. May not be applied toward MA or PhD degree requirements. S/U grading.

**495. College Teaching of Linguistics (2)** Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Seminars, workshops, and apprentice teaching. Selected topics, including curriculum development, various teaching strategies and their effects, teaching evaluation, and other topics on college teaching. Students receive unit credit toward full-time equivalence but not toward any degree requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596A. Directed Studies (1 to 8)** Preparation: completion of all undergraduate deficiency courses. Directed individual study or research. May be applied toward MA course requirements. May be repeated for credit. S/U grading.

**596B. Directed Linguistic Analysis (1 to 8)** Preparation: completion of degree requirements. Intensive work with native speakers by students individually. May be repeated for credit. S/U grading.

**597. Preparation for MA Comprehensive and PhD Qualifying Examinations (1 to 8)** Preparation: at least six graduate linguistics courses. May be taken only in terms in which students expect to take comprehensive or qualifying examinations. May not be applied toward MA course requirements. May be repeated for credit. S/U grading.

**598. Research for MA Thesis (1 to 8)** Research and preparation of MA thesis. May not be applied toward MA course requirements. May be repeated for a maximum of 8 units. S/U grading.

**599. Research for PhD Dissertation (1 to 16)** Preparation: advancement to PhD candidacy. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

## Swahili Courses

### Lower Division

**1. Elementary Swahili (4)** Lecture, five hours. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

**2. Elementary Swahili (4)** Lecture, five hours. Enforced requisite: course 1. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

**3. Elementary Swahili (4)** Lecture, five hours. Enforced requisite: course 2. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

**4. Intermediate Swahili (4)** Lecture, four hours. Enforced requisite: course 3. P/NP or letter grading.

**5. Intermediate Swahili (4)** Lecture, four hours. Enforced requisite: course 4. P/NP or letter grading.

**6. Intermediate Swahili (4)** Lecture, four hours. Enforced requisite: course 5. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101. Advanced Swahili (4)** Lecture, four hours. Enforced requisite: course 6. P/NP or letter grading.

**102. Advanced Swahili (4)** Lecture, four hours. Enforced requisite: course 101. P/NP or letter grading.

**103. Advanced Swahili (4)** Lecture, four hours. Enforced requisite: course 102. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Management

### Management Courses

#### Lower Division

**1A. Principles of Accounting (4)** Lecture, three hours; discussion, one hour. Not open to freshmen. Introduction to financial accounting principles, including preparation and analysis of financial transactions and financial statements. Valuation and recording of asset-related transactions, including cash, receivables, marketable securities, inventories, and long-lived assets. Current liabilities. P/NP or letter grading.

**1B. Principles of Accounting (4)** Lecture, three hours; discussion, one hour. Requisite: course 1A. Not open to freshmen. Completion of balance sheet with emphasis on debt and equity, including in-depth introduction to time value of money concepts. Introduction to partnership and individual income tax accounting. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**88. Lower-Division Seminar: Special Topics in Management. (1 to 4)** Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Entry-Level Writing requirement. Variable topics seminar that examines specific issues or problems and ways that professionals in management approach study of them. Students define, prepare, and present their own research projects with guidance of professional school faculty member. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

#### Upper Division

**105. International Business (4)** Lecture, four hours. The world economy has experienced dramatic changes over the last 50 years, which have resulted in an increasing trend toward globalization. Changing attitudes and policies toward cross-border trade, along with advancements in technology, have fueled a building movement toward an interdependent, integrated global economic system. Recent events have highlighted volatile nature of globalization, and that globalization is not an inevitability. For businesses, this globalization process has transformed entire industries, and produced many opportunities and pitfalls that need to be carefully managed. Introduction to growing field of international business. Overview, historical background, and theories to understand context of international business. Students learn resulting opportunities and threats that firms face from increasingly globalized world, and strategies that managers can pursue to capitalize upon opportunities and counter threats. P/NP or letter grading.

**108. Business Law (4)** Lecture, three hours. Not open to freshmen. Essentials of contracts, agency, partnerships, corporations, and other select areas of law in a business environment. P/NP or letter grading.

**109. International Business Law (4)** Lecture, three hours. Recommended requisite: course 108. Study of international business legal environment, including general overview of international laws and organizations and comprehensive review of U.S. regulations of international business transactions. Special emphasis on international litigation, commercial transactions, regulation of investments, multinational corporations, and international banking. P/NP or letter grading.

**120A. Intermediate Financial Accounting I (5)** Lecture, four hours. Requisite: course 1B. Intermediate-level course in theory and practice of financial accounting. Underlying concepts of asset valuation and income measurement. Measurement and reporting of current and long-term assets, including cash and marketable securities, inventories, plant assets and depreciation, and intangibles. P/NP or letter grading.

**120B. Intermediate Financial Accounting II (5)** Lecture, four hours. Requisite: course 120A. Intermediate-level course in theory and practice of financial accounting. Underlying concepts of liability recognition and expense, including leases, bonds, and pensions. Shareholder's equity, including earnings per share. Accounting for changing prices. P/NP or letter grading.

**121. Ethical Leadership in Accounting (4)** Lecture, seven and one half hours. Not open to freshmen. Review of range of ethical considerations in business decisions involving individuals, corporations, society, and international business. Analysis of cases for presentation and discussion. What is ethical dilemma posed? What is range of possible decisions and band of ethical choices supporting them? Offered in summer only. Letter grading.

**122. Management Accounting (4)** Lecture, three hours. Requisites: course 1B, one statistics course. Nature, objectives, and procedures of cost accounting and control; job costing and process costing; accounting for manufacturing overhead; cost budgeting; cost reports; joint-product costing; distribution cost; standard costs; differential cost analysis; profit-volume relationships and break-even analysis. P/NP or letter grading.

**123. Auditing (4)** Lecture, three hours. Requisite: course 120B. Comprehensive study of procedures used in verification of financial statements and related information, including ethical, legal, and other professional issues. Auditing of a complete set of financial statements. P/NP or letter grading.

**124. Advanced Accounting (4)** Lecture, three hours. Requisite: course 120B. Specialized accounting topics in business combinations, consolidated financial statements, branch accounting, leveraged buyouts, Securities and Exchange Commission, foreign currency transactions, translation of foreign financial statements, partnership ownership changes and liquidations, governmental accounting, and bankruptcy. P/NP or letter grading.

**125. Audit and Fraud Examination (4)** Lecture, three hours. Requisite: course 120B (may be taken concurrently). In-depth analysis of fraud examination, detection, and prevention; and auditing in post-Enron era. Discussions concerning the Sarbanes-Oxley Act of 2002 and Statement on Auditing Standards 99: Considerations of Fraud in a Financial Statement Audit (SAS 99). Overview of fraud. Analysis and discussion of the Enron case and other cases in order to understand the nature of fraud and its perpetrators. Addresses the auditing process, including the Sarbanes-Oxley Act of 2002 and SAS 99; and impact of Sarbanes-Oxley on financial statement auditing and public accounting. Letter grading.

**126. Financial Statement Analysis (4)** Lecture, four hours. Requisite: course 120B. Comprehensive study of concepts and procedures used to interpret and analyze balance sheet, income statement, and statement of cash flows. Calculation and interpretation of financial ratios and credit analysis. Valuation theory using both discounted cash flows and residual income model. P/NP or letter grading.

**127A. Tax Principles and Policy (4)** Lecture, three hours. Requisite: course 1B. Study of fundamental income tax problems encountered by individuals and other entities in analyzing business, investment, employment, and personal decisions. Special emphasis on role of tax rules in capital transactions and decision making. P/NP or letter grading.

**127B. Corporate and Partnership Taxation (4)** Lecture, three hours. Requisite: course 1B. Recommended: course 127A. Study of tax issues arising in formation, operation, and termination of corporations and partnerships. Special emphasis on closely held enterprises, including S corporations. P/NP or letter grading.

**127C. International Taxation (4)** Lecture, three hours. Recommended requisite: course 127A. Study of two principle areas of international taxation from U.S. regulatory perspective: taxation of American citizens and companies conducting business in international arena (outbound transactions) and taxation of foreign nationals and companies who invest or conduct business in the U.S. (inbound transactions). P/NP or letter grading.

**128. Special Topics in Accounting (4)** Lecture, three hours. Requisite: course 120B. Selected topics in public accounting, such as audit and fraud examination, mergers and acquisitions, public-company status and going-public process, role of partner, serving entrepreneurial clients, and fund accounting. Discussion of case study of current interest in accounting profession. Business plan preparation. P/NP or letter grading.

**130A. Basic Managerial Finance (4)** Lecture, three hours. Requisites: course 1B, one statistics course. Not open for credit to students with credit for Economics 106F. Study of financial decision making by business firms, with emphasis on applications of economic and accounting principles in financial analysis, planning, and control. Extensive use of problems and cases to illustrate varied analytical techniques employed in decision making. P/NP or letter grading.

phases on applications of economic and accounting principles in financial analysis, planning, and control. Extensive use of problems and cases to illustrate varied analytical techniques employed in decision making. P/NP or letter grading.

**140. Elements of Production and Operations Research (4)** Lecture, four hours. Requisites: Mathematics 3A, 3B, 3C. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities. Analytical models and methods for allocation, transportation, inventories, replacement, scheduling, and facilities design. P/NP or letter grading.

**142A. Analytics in Accounting I (4)** Lecture, three hours. Not open to first years. Introduction to use of models and modeling in decision making, with focus on important types of models, their formulation and application, and insight and information that may be gained from use of modeling. Topics include pivot tables, data tables, lookup functionality, introduction to programming behind spreadsheets, software functionality and efficiency, and more. Applications are focused on accounting and finance, with emphasis on model formulation, interpretation of solutions, and understanding of mathematical versus verbal explanation of situations. Analytical focus on asking question, mastering data, performing analysis, and communication of story. Letter grading.

**142B. Analytics in Accounting II (4)** Lecture, three hours. Requisite: course 142A. Preparation: intermediate Excel user. Not open to first years. Topics include cleaning and analyzing data, and advanced dashboard techniques, to evaluate accounting data. All applications are related to accounting and finance. Includes developing analytics mindset, data scrubbing and preparation, and data quality. Emphasis on graphical and written techniques to communicate results. Letter grading.

**142C. Analytics in Accounting III (4)** Lecture, three hours. Requisite: course 142B. Preparation: intermediate Excel user. Not open to first years. Topics include cleaning and analyzing data, and advanced dashboard techniques, to evaluate accounting data. All applications are related to accounting and finance. Includes developing analytics mindset, data scrubbing and preparation, and data quality. Emphasis on graphical and written techniques to communicate results. Letter grading.

**159. Foundations of Business and Entrepreneurship (4)** Lecture, three hours. Introductory overview of core areas of business and entrepreneurship including accounting, finance, marketing, operations, organization behavior, and strategy. Discussion of concepts in context of large existing organizations, small businesses, and new entrepreneurial ventures. Students gain solid foundational knowledge of components of business as well as how organizations are managed in increasingly competitive and global economy. Letter grading.

**160. Entrepreneurship and Venture Initiation (4)** Lecture, three hours; discussion, one hour. Introduction to key concepts of entrepreneurship, including new product development, finance, business plan development, and technology commercialization. Basic tools and personal characteristics required for entrepreneurship. Terminology used by lawyers, accountants, venture capitalists, and other investors when forming and financing new companies to be developed as startups, spinouts from existing company, or acquisitions of existing company (or its assets). Assessment of feasibility of business concept and communication of concept to potential investors, employees, and business partners. Discussion of technology feasibility, intellectual property, and licensing. Letter grading.

**161. Business Plan Development (4)** Lecture, three hours. Enforced requisite: course 160. Fundamentals of developing effective business plans, both in presentation and written form. Basic principles of designing and articulating plans for sales, marketing, product or service, operations, financials, management, and staffing functions of new startup businesses. How to develop well-written investment-quality business plans and business plan presentations, understand various analytical processes required to produce such plans, improve student writing and oral presentation skills, and formally present their business plans to audience of angel and venture capital investors. Letter grading.

**162. Entrepreneurship and Technology Commercialization (4)** Lecture, three hours. Designed for juniors/seniors. Introduction to transformation of new knowledge and inventions into viable commercial products and services, with particular emphasis on technology being developed at major research universities like UCLA. Initial emphasis on assessment and protection of intellectual property and early evaluation of technologies to determine potential for commercialization. How intellectual property in its various forms is protected and how rights to these assets are negotiated by parties involved. Examination of nature of contracts and negotiation between university technology transfer of-



fices, researchers, technical experts, and early investors in commercialization space that might lead to patents, licenses, or new business development. Letter grading.

**163. Entrepreneurship and New Product Development (4)** Lecture, three hours. Designed for juniors/seniors. Introduction to new product innovation and management. Students assume role of product managers in identifying, developing, and commercializing new products through cases, businesses currently in news, team project, and readings to develop critical thinking, decision-making skills, and creativity in launch of successful new product (team project). Letter grading.

**164. Entrepreneurial Finance and Accounting (4)** Lecture, three hours. Designed for juniors/seniors. Introduction to fundamental concepts of financial management of early-stage companies, with particular emphasis on capital formation of new ventures. Relationship between entrepreneurs and investors and discussion of different goals of founders and investors, including nature of negotiation and relationship between parties over time. Letter grading.

**165. Marketing Principles for Entrepreneurs (4)** Lecture, three hours. Study and application of analytic frameworks to assess market opportunities and implement marketing strategies for entrepreneurial firms. Letter grading.

**167. Social Entrepreneurship (4)** Lecture, three hours. Designed for juniors/seniors. Examination of fundamental challenges and opportunities of developing and managing enterprises with social missions. Use of framework to develop strategic implementation plan that incorporates external analysis, organizational assessment, strategy development, and executable action steps and draws on expertise and experience of faculty members and alumni as well as experts in fields of social entrepreneurship, nonprofit management, and strategic philanthropy who present select topics of interest. Letter grading.

**168. Personal Financial Health: Theory and Practice (4)** Lecture, three hours. Helps develop class of financially literate students who will be financially secure today and in future. Students gain knowledge, skills, and confidence to take charge of their financial futures and have potential to prosper. Covers many financial decisions made by entrepreneurs. Interplay between financial conditions of business and financial situation of owner is something that many entrepreneurs fail to plan for when they launch new business. Specific topics covered include budgeting, time value of money, installment purchases, protection of assets, principles of investing, retirement and estate planning, psychology of money, income taxes, banking, and credit. Topics from behavioral finance include suboptimal spending, mistakes investors make, and money and happiness. Letter grading.

**169. Entrepreneurial Leadership and Practical Experience (4)** Lecture, three hours; fieldwork, eight hours. Enrollment by instructor consent. Capstone for undergraduate minor in Entrepreneurship. Application of critical thinking, research skills, and education to one of following experiences: internship at off-site entrepreneurial firm, or active pursuit of entrepreneurial startup idea. Real-world experience supplemented with theoretical knowledge on entrepreneurial leadership, ethics, and professional branding. Letter grading.

**170. Real Estate Finance and Investments (4)** Lecture, three hours. Exploration of fundamentals of residential and commercial real estate finance, investment, and development. Study of qualitative concepts and quantitative tools necessary to develop real estate decision-making skills. Analysis of variety of case studies of finance, investment, and development projects from U.S., Europe, China, and Japan that highlight opportunities, risks, challenges, and solutions that were unique to each situation. Use of specially prepared Excel models to understand and evaluate financial aspects of transactions, consideration of macroeconomic context, and discussion of its potential impact on real estate finance and investment decisions. P/NP or letter grading.

**180. Special Topics in Management (4)** Lecture, four hours. Topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors or students. May be repeated for credit. P/NP or letter grading.

**182. Leadership Principles and Practice (4)** Lecture, six hours. Proven methods for motivating, and inspiring best performance, persuading, and influencing others; leading high-performance teams; creativity and innovation; decision-making, and negotiating skills, both one-on-one and in groups. Organizational examples, simulations, and in-class exercises. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**194. Anderson School of Management Research Group Seminar (2)** Seminar, two hours. Study and analysis of current topics in management and business. Discussion of current research and literature in research specialty of faculty instructor. P/NP grading

**195. Community or Corporate Internships in Management. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research in Management. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation of selected research topic under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**201A. Business Forecasting: Turning Numbers into Knowledge (4)** Discussion, three hours. Preparation: familiarity with linear regression. Examination of one approach to analytical thinking—forcing numerical and textual data into carefully formulated alternative models. Data studied include macroeconomic variables (growth, inflation, unemployment, interest rates, and exchange rates), industry data, and firm data. Letter grading.

**201B. Econometrics and Business Forecasting (4)** Lecture, three hours. Development of standard topics in applied econometric modeling. Emphasis on assumptions underlying classical normal linear regression model, special problems in application, and interpretation of results. Practical applications extensively developed in student projects.

**202B. Economic Consulting and Applied Managerial Economics (4)** Lecture, three hours. Requisites: courses 402, 405. Use of economic methods to analyze issues of intellectual property, environmental damage, trademark infringement, brand value, and consumer demand. Focus on econometric thinking and problem solving using case studies as basis for lectures and homework. S/U or letter grading.

**203. Behavioral Economics (4)** Lecture, three hours. Behavioral economics incorporates insights from psychology (and other social sciences) to improve understanding of economic markets and decision making. By relaxing or replacing simplifying assumptions of standard economic models, behavioral economics aims to describe behavior with greater psychological realism and empirical accuracy. Overview of this rapidly developing field, and illustration of its implications for business and policy decisions across variety of contexts. Use of lectures, discussion, group interactions and projects, examination, and problem set to introduce topic of behavioral economics. Letter grading.

**205A. International Business Economics (4)** Requisite: course 405. International business environment, international economic institutions, national and regional trade policies and developments, trends in foreign markets, and international monetary problems, studied for their influence on organization and operation of the international corporation.

**206. Global Trends (4)** Lecture, three hours. Exploration of recent global trends affecting business. Global trends are social, economic, and geopolitical evolutions that have first-order effects on management practices and business opportunities around world. Global managers need to develop keen sense of these evolutions in order to lead successful businesses that can adapt to and take advantage of global trends. Study improves student understanding of these trends to become better managers. Letter grading.

**209. Managing Complex Business Deals. (4, 6)** Lecture, three hours. Preparation: familiarity with basic vocabulary and concepts, including basic principles of accounting and valuation. Advanced course in business organization. Examination of structure of business transactions and allocation of control, risk, and return. Topics include venture capital investments, debt and loan agreements, employment agreements, distribution and marketing agreements (including franchising), motion picture production/finance/distribution agreements, and joint ventures. Assigned reading and focus on documents that incorporate terms of business transactions of deals. Concurrently scheduled with Law 239. S/U or letter grading.

**209A. Managing Complex Business Deals. (3, 4)** Lecture, three hours. Preparation: familiarity with basic vocabulary and concepts, including basic principles of accounting and valuation. Course 209A is enforced requisite to 209B. Advanced course in business organization. Examination of structure of business transactions and allocation of control, risk, and return. Topics include venture capital investments, debt and loan agreements, employment agreements, distribution and marketing agreements (including franchising), motion picture production/finance/distribution agreements, and joint ventures. Assigned reading and focus on documents that incorporate terms of business transactions of deals. Concurrently schedule with Law 239. In Progress grading (credit to be given only on completion of course 209B).

**209B. Managing Complex Business Deals. (1, 2)** Lecture, three hours. Preparation: familiarity with basic vocabulary and concepts, including basic principles of accounting and valuation. Enforced requisite: course 209A. Continuation of course 209A. Advanced course in business organization. Examination of structure of business transactions and allocation of control, risk, and return. Topics include venture capital investments, debt and loan agreements, employment agreements, distribution and marketing agreements (including franchising), motion picture production/finance/distribution agreements, and joint ventures. Assigned reading and focus on documents that incorporate terms of business transactions of deals. Concurrently schedule with Law 239. S/U or letter grading.

**214. Managerial Decision Making (4)** Lecture, three hours. Introduction to principles of rational judgment and choice, common behavioral biases of managers and consumers, and corrective tools and procedures, drawing heavily on disciplines of psychology and behavioral economics. Topics include decision structuring, chance processes, forecasting, confidence, likelihood judgment, risk perception and risk-taking, decision under uncertainty, multiattribute choice, framing and mental accounting, intertemporal choice, allocation decisions, organizational decision making, choice architecture, happiness, and well-being. S/U or letter grading.

**215A. Negotiations Analysis (4)** Lecture, three hours. Series of negotiation exercises to foster development of students' negotiation skills and experience. Use of economic concepts and simple analyses in exercise debriefs to gain insight and to develop framework applicable to business negotiations. S/U or letter grading.

**215B. Market Entry Strategy (4)** Lecture, three hours. Requisite: course 420. Analysis of strategic issues encountered by entrepreneurial and established companies in entering new markets. Emphasis on idea generation, timing, industry evolution, entry modes, optimal growth, and competitive interaction. S/U or letter grading.

**217A. Decision Analysis (4)** Lecture, three hours. Requisite: course 402. Managerial decision making occurs in presence of uncertainty which can be about events over which no individual has any control or it can be about what other individuals will do. Framework provided for structuring and analyzing such decisions, with application of framework to such scenarios as product development, litigation, business of treasure hunting, and bidding. S/U or letter grading.

**218. Tools and Analysis for Business Strategy (4)** Lecture, three hours. Goal is for students to become more comfortable with design, execution, and interpretation of data analysis that can meaningfully inform business strategy formulation. Pedagogical approach is firmly rooted in learning by doing. Use of variety of real-world examples to gain practice with quantitative methods that can be deployed in business settings to analyze underlying predictors and causes of firm success. Letter grading.

**220. Corporate Financial Reporting (4)** Lecture, three hours. Requisite: course 403. In-depth treatment of significant corporate financial reporting issues to enhance understanding of financial statements and student ability to interpret and use information contained in these disclosures. Emphasis on economic substance of transactions. S/U or letter grading.

**222. Corporate Decision Making and Incentives (4)** Lecture, three hours. Requisite: course 403. Use of basic microeconomics to answer what information is needed to make managerial decisions, what incentives are needed to motivate managers, and how information should be recorded to facilitate both. Essential for careers in consulting, private equity, and general management. S/U or letter grading.

**223. Choice Architecture (4)** Lecture, three hours. Leverages behavioral science principles to solve real societal and policy problems. Through partnerships with health, government, and industry contacts, students work in teams to identify behavioral problems within organizations; test and guide implementation of evidence-based solutions. Provides structured on-ramp to skilled application of behavioral insight in real-world contexts. Ideal for students who want to weave rigorous behavioral insight into their emerging leadership style. Letter grading.

**224. Business Law for Managers and Entrepreneurs (4)** Lecture, three hours. Introductory course that uses practical approach to teach students to recognize, understand, and manage legal issues. Topics include contract law, litigation process and alternatives, intellectual property law, business formation, corporate law, employment law, collateralized lending, and bankruptcy reorganizations. How to deal with potential legal issues before they become serious problems. S/U or letter grading.

**225. Law and Management of Nonprofit Organizations (2)** (Same as Public Policy M229.) Lecture, three hours. Introduction to important legal, financial, and management issues confronting nonprofit organizations. Topics include how to start nonprofit tax-exempt organizations, qualifying and maintaining tax-exempt status under IRC Code Section 501(c)(3), corporate governance, political and legislative activity restrictions, and strategic planning, fundraising, nonprofit accounting, and employment law. S/U or letter grading.

**226. Special Advanced Topics in Accounting (4)** Lecture, three hours. Requisite: course 403. Examination of advanced topics in accounting that arise in business combinations and international accounting practices, including principles underlying consolidated financial statements, treatment of unconsolidated subsidiaries and affiliate investments, translation of foreign exchange, and valuation of derivatives for hedging exchange risk. S/U or letter grading.

**227. Taxation and Management Decisions (4)** Lecture, three hours. Requisite: course 403. Examination of impact of taxes on decisions of businesses and investors. Effects of taxes on investment decisions, mergers and acquisitions, capital structure, dividend policies, and employee compensation. S/U or letter grading.

**228. Financial Statement Analysis (4)** Lecture, three hours. Requisite: course 403. Preparation: course 220 (corporate financial reporting), or comfort with learning new concepts independently prior to covering in class. Development of skills and tools for using financial statements and other information to evaluate and value companies. Financial analysis segment covers use of accounting to evaluate company performance. Forecasting and valuation segment develops techniques for estimating fundamental value of company, and evaluating estimates. Applied course with some valuation theory, but only cursory reviews of accounting principles. S/U or letter grading.

**231C. Corporate Valuation (4)** Lecture, three hours. Requisites: courses 408, 430. Lectures, discussions, and student presentations. Issues and analytical tools relevant for valuing projects, divisions, and corporations. Theories of discounted cash flow valuation (DCF) and relative valuation using market multiples. Theories of practice to value different projects, including IPO, mergers and acquisitions, divestitures, and private firms. Exploration of how real options affect investment decisions and how they can be identified and valued. Letter grading.

**231D. Takeovers, Restructuring, and Corporate Governance (4)** Lecture, three hours. Requisite: Management-Executive MBA 408 or Management-Full-Time MBA 408 or Management-Fully Employed MBA 408. Students gain solid understanding of the opportunities and risks posed by mergers, acquisitions, and restructurings (M&A). Students gain basic conceptual and technical tools to evaluate M&A transactions as well as insight into the practical deal-making skills that often spell the difference between success and failure. Topics include the strategic rationale for the deal; valuation and structuring considerations; legal, regulatory, and tax environments; perspectives of strategic versus financial buyers; and differences between healthy and distressed M&A. S/U or letter grading.

**231E. Managing Finance and Financing Emerging Enterprises (4)** Lecture, three hours. Requisites: courses 230 (or 430), 403, 408. Designed for second-year graduate students. Emphasis on financial, control, and investment issues

confronting rapidly growing companies in entrepreneurial settings. Consideration and selection of financing vehicles that may be appropriate to securing organizations' money requirements. S/U or letter grading.

**232A. Investment Management (4)** Lecture, three hours. Requisites: courses 230 (or 430), 408. Topics include application of portfolio theory to investment decisions, performance evaluation, and basics of portfolio management strategies. S/U or letter grading.

**232B. Fixed-Income Markets (4)** Lecture, three hours. Preparation: demonstrable training in statistics. Requisite: course 408. Introduction to fixed-income markets: institutional arrangements in primary and secondary markets; description and analysis of various types of fixed-income instruments; valuation; fixed-income portfolio management; use of derivative instruments and dynamic investment strategies; asset securitization. S/U or letter grading.

**232D. Option Markets (4)** Lecture, three hours. Requisite: course 408. Organization and role of organized derivative markets, including listed and OTC options and futures: arbitrage and hedging relationships, valuation of derivative trading strategies, and innovations in derivative markets. Students learn fundamentals of hedging and spreading by playing option trading game and writing term paper analyzing their strategies. S/U or letter grading.

**232E. Market and Credit Risk Management (4)** Lecture, three hours. Requisites: courses 408, 430. Discussion of regulatory environment for both market and credit risk management, data necessary to manage these risks, types of models used for risk management, types of securities and techniques for hedging market and credit risks, performance measurement of risk management systems, and other types of risks that affect risk management, such as operation risk, liquidity risk, commodity risk, weather risk, and model risk. Letter grading.

**232F. Behavioral Finance (4)** Lecture, three hours. Requisite: course 408. Introduction to and explanation of evidence of anomalous return behavior found in U.S. equities markets. Presentation of some paradigms of stock price movements that are rooted in studies from psychology and explanation of trading activity in equity risk-return paradigm. Introduction to some psychological biases that researchers suspect are inherent to investors. Employment of some results from psychology literature to explain irrationalities encountered in finance literature. Presentation of latest evidence on why individual investors trade and how individual and institutional investors form their portfolios. Letter grading.

**234A. International Financial Markets (4)** Lecture, three hours. Enforced requisite: course 408. Conceptual understanding of foreign exchange market, Eurocurrency market, international bond market, and equity markets in various countries. Emphasis on underlying economic principles, although where relevant, institutional features helpful in understanding structure and operations of markets to be dealt with in detail. S/U or letter grading.

**235. Venture Capital and Private Equity (4)** Lecture, three hours. Requisite: course 408. Use of cases to study entrepreneurial finance and venture capital. Analysis of issues faced by entrepreneurs who are setting up new firms, as well as decisions of private equity partnership managers and investors. How transactions are structured and why investors and entrepreneurs choose certain contractual arrangements. Development of understanding for institutional context of private equity finance. Time also devoted to leveraged buyouts. S/U or letter grading.

**238. Special Topics in Finance (4)** Lecture, three hours. Requisites: courses 230 (or 430), 408. Selected topics in finance theory, empirical studies, and financial policy. May be repeated for credit with instructor change. S/U or letter grading.

**240E. Managing Entrepreneurial Operations (4)** Lecture, three hours. Requisite: course 410. Designed for second-year graduate students. Exploration of operating issues involved in managing entrepreneurial enterprises. Integrative course, building on methodologies, principles, and concepts provided in requisite functional and strategic core courses. Use of extensive readings and case studies to develop skills and philosophical basis for applying managerial concepts to entrepreneurial operations. S/U or letter grading.

**240F. Global Supply Chain Management (4)** Lecture, three hours. Requisite: course 410. Business environment today is characterized by globalized operations, intense competition, rapid technological change, and short product life cycles. Consequently, firms can no longer afford to operate in isolation. In many industries competition has moved from firm level to supply chain level. Provides understanding of strategic, tactical, and operational issues in supply chain management, with generous attention to emerging digital economy. S/U or letter grading.

**240G. Global Operations Strategy (4)** Lecture, three hours. Requisite: course 410. Study of challenges of operating globally in range of industries, including software, consulting, automotive, and textile. Several opportunities for hands-on quantitative methods, with strategic perspective throughout. S/U or letter grading.

**241A. Technology Management (4)** Lecture, three hours. Requisites: courses 410, 411. Management of high-technology firm, including acquisition, creation, and utilization of technology and knowledge assets. Research and product development, product and process technologies, technology regimes, high-technology markets, competition, and technology strategies. Case examples from sectors such as computing, telecommunications, e-business, medical devices, nanotechnology, advanced transportation systems, and electronics. S/U or letter grading.

**246A. Business and Environment (4)** Lecture, three hours. Overview of many ways in which environmental issues interact with main functional areas of business: finance, marketing, strategy, operations, accounting. Basic introduction to background of environmental issues, with focus primarily on business aspects. Specific topics vary from year to year, but course details what every manager should know about environmental issues in business. S/U or letter grading.

**247. Intellectual Property for Technology Entrepreneurs and Managers (2)** (Same as Electrical and Computer Engineering M293.) Seminar, two hours; outside study, four hours. Introduction to intellectual property (IP) in context of technology products and markets. Topics include best practices to put in place before product development starts, how to develop high-value patent portfolios, patent licensing, offensive and defensive IP litigation considerations, trade secrets, opportunities and pitfalls of open source software, trademarks, managing copyright in increasingly complex content ecosystems, and adopting IP strategies to globalized marketplaces. Includes case studies inspired by complex IP questions facing technology companies today. S/U or letter grading.

**250D. Patterns of Problem Solving (4)** Lecture, three hours. Acquisition of strategies that enhance adaptive planning and real-time judgment, based on findings from brain studies and cognitive research. Design of tools to respond to emergent uncertainties and to address situations where intense pressures of time and cost are present. Letter grading.

**252. Persuasion and Influence (4)** Lecture, three hours. Enforced requisite: course 409. Designed for individuals interested in improving their ability to persuade and influence others. Consideration of number of well-studied persuasion and influence strategies that result in greater buy-in for one's ideas, initiatives, proposals, products, and requests. Letter grading.

**254. Advanced Topics on Motivating People and the Future of Work (4)** Lecture, three hours. Requisite: one course from Management-Executive MBA 409, Management-Full-Time MBA 401A, 401B, 409, Management-Fully Employed MBA 401, or 409. Introduction to a wide variety of modern incentive systems, both monetary and non-monetary, and cutting-edge technology and people analytics that help managers optimize the employee experience. Focus on the future of people management in organizations from hiring, to performance management, to talent development and promotion. Through combinations of case discussions, exercises, guest speakers, and lectures, students gain the skills they need to manage the workforce of the future. Letter grading.

**256. Leadership and Ethics (4)** Lecture, three hours. Series of real-life business situations that pose complex problems of leadership and ethics, so students develop better understanding of how they can successfully address business situations that define their leadership and ethical positions. Letter grading.

**259. Performance Management (2)** Lecture, three hours. Focus on providing tools and skills that allow students to excel in communicating their vision, inspiring and gaining commitment from stakeholders, and impressing interviewers and investors. Course materials are grounded in empirical research. Skills and techniques learned are broadly generalizable. Experiential exercises to enhance students' abilities in oral and written communications. Letter grading.

**260A. Customer Assessment and Analytics (4)** Lecture, three hours. Enforced requisite: course 411. Decision-oriented course concerned with marketing research and data-driven marketing analytics. Detailed hands-on understanding of market research methodologies used in strategic assessment of customer perceptions and preferences. Extensive use of case studies. Letter grading.

**260B. Marketing Strategy and Resource Allocation (4)** Lecture, three hours. Requisite: Management-Full Time MBA 411 or Management-Fully Employed MBA 411. Provides conceptual frameworks and hones creative and analytical

skills that are necessary to deal with uncertainty that embraces every marketing strategy. Focus on problem-solving integrating the marketing and business background obtained in core courses. Letter grading.

**261A. Sales and Channel Management (4)** Lecture, three hours. Requisite: course 411. Study of problems in management of sales and distribution channels. Issues of personal selling, account management, determining sales force size, organization, and compensation plans. Coverage of channel selection, conflict, power, and control. Extensive use of case studies. Letter grading.

**261B. Global Marketing Management (4)** Lecture, three hours. Requisite: course 411. Analysis of opportunities, distinctive characteristics, and emerging trends in foreign markets, including exploration of alternative methods and strategies for entering foreign markets; organizational planning and control; impact of social, cultural, economic, and political differences; and problems of adapting American marketing concepts and methods. Letter grading.

**262. Price Policies (4)** Lecture, three hours. Requisites: courses 405, 411. Consideration of environment of pricing decision—costs, customer, channels, competition, and regulation. Analysis of when and how to apply specific pricing strategies, including two-part tariffs, quantity discounts, product differentiation, bundling, and auctions. Letter grading.

**263A. Consumer Behavior (4)** Lecture, three hours. Requisite: course 411. Study of nature and determinants of consumer behavior. Emphasis on influence of sociopsychological factors such as personality, small groups, demographic variables, social class, and culture on formation of consumers' attitudes, consumption, and purchasing behavior. S/U or letter grading.

**264A. Market Research (4)** Lecture, three hours. Requisite: course 411. Designed for prospective users of research results rather than for specialists in research. Marketing research is aid to management decision making. Development of problem-analysis skills, providing knowledge of concepts and methods of marketing research, with increased sensitivity to limitations of marketing data. Letter grading.

**264B. Data Analytics for Marketing and Finance (4)** Lecture, three hours. Enforced requisite: course 402. How to fit predictive models and visualize multivariate data using examples and topics from marketing and finance. Topics include conditional prediction and predictive models, advanced treatment of regression, visualization and graphics, automating analysis for high dimensional data. Use of industry-leading R/Rstudio statistical environment. S/U or letter grading.

**265. Brand Management (4)** Lecture, three hours. Requisite: course 411. Introduction to considerations in development, implementation, and management of brands. Discussion of challenges to creating and maintaining strong brands. Topics include building brand knowledge and identities, marketing mix and brands, brand architectures, and brand equity. Letter grading.

**266A. New Product Development (4)** Lecture, three hours. Requisite: course 411. Examination of new product development (NPD) process with objective of learning key tools and methods and applying them to case studies, exercises, and course project. Products viewed through three lenses: quantifiable rational attributes, appeal due to emotional characteristics, and cost/technology/competitive tradeoffs. NPD process also investigated through five key phases: ideation, concept generation and selection, detailed design, prototyping and testing, and ramp-up and product launch. Coverage of mass customization, parallel prototyping, cost reduction, and creativity. Letter grading.

**266B. Advertising and Marketing Communications (4)** Lecture, three hours. Requisite: course 411. Detailed study of decisions regarding media and forms of advertising and marketing communications to develop integrated strategies. Review of use and effectiveness of advertising and communication tools. Evaluation of advertising and promotional policies from development through implementation. Letter grading.

**267. Digital Marketing Analytics (4)** Lecture, three hours. Requisites: courses 402, 411. Use of notion of customer life cycle as organizing principle and application to digital marketing context. Frameworks and data-analytical tools for interacting with customers and learning about their preferences as they evolve through four stages of customer life cycle: (1) customer acquisition, (2) initial post-promotion purchasing, (3) mid-maturity purchase and transaction behavior, and (4) customer attrition or switchover to other product lines. S/U or letter grading.

**268. Selected Topics in Marketing (4)** Lecture, three hours. Requisite: course 411. Study of selected areas of marketing knowledge and thought. Specific subjects vary each term depending on particular interests of instructor and students. Individual projects and reports. May be repeated for credit. S/U or letter grading.

**270C. Web Business (4)** Lecture, three hours. Doing business on Web. Web infrastructure and ecology. Web business models and strategies. Web business development, operation, and marketing. New frontiers, such as Web services, social networking, and semantic Web. S/U or letter grading.

**271A. Medtech Innovation I: Entrepreneurial Opportunities in Medical Technology (4)** (Same as Bioengineering M233A.) Lecture, three hours; outside study, nine hours. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Focus on understanding how to identify unmet clinical needs, properly filtering through these needs using various acceptance criteria, and selecting promising needs for which potential medtech solutions are explored. Students work in groups to expedite traditional research and development processes to invent and implement new medtech devices that increase quality of clinical care and result in improved patient outcomes in hospital system. Introduction to intellectual property basics and various medtech business models. Letter grading.

**271B. Medtech Innovation II: Prototyping and New Venture Development (4)** (Same as Bioengineering M233B.) Lecture, three hours; outside study, nine hours. Requisite: course M271A. Designed for graduate and professional students in engineering, dentistry, design, law, management, and medicine. Development of medtech solutions for unmet clinical needs previously identified in course M271A. Steps necessary to commercialize viable medtech solutions. Exploration of concept selection, business plan development, intellectual property filing, financing strategies, and device prototyping. Letter grading.

**272A. Information Systems Project Management (4)** Lecture, three hours. Methods and tools for project management in information systems (IS) context. Initiating, planning, executing, controlling, reporting, and closing projects. Project integration, scope, time, cost, quality control, and risk management. Sourcing and external procurement. Contracting and managing partner relationships. Change management. S/U or letter grading.

**273. Current Topics in Entertainment, Media, and Sports (2)** Seminar, two hours. Designed for graduate students. Examination in depth of current issues in entertainment, media, and sports. Topics vary. May be repeated for credit. S/U or letter grading.

**274A. Advanced Topics in Management Capstone (4)** Seminar, three hours. Must be taken after completion of first year in program. Faculty-led supervised research project in an academic area of inquiry in management including identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. In Progress grading (credit to be given only on completion of course 274B).

**274B. Advanced Topics in Management Capstone (4)** Fieldwork, three hours. Enforced requisite: course 274A. Must be taken after completion of first year in program. Faculty-led supervised research project in an academic area of inquiry in management including, identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. Letter grading.

**275. Current Topics in Emerging Technologies and Markets (2)** Seminar, two hours. Designed for graduate students. Examination in depth of current emerging technologies and related market developments. Topics vary. May be repeated for credit. S/U or letter grading.

**277. Real Estate Finance Law. (1 to 8)** (Same as Law M209.) Lecture, three hours. Concentrated study of law governing financing of land transactions from both national and California perspectives. Topics include California deed of trust, installment land contracts and other mortgaging substitutes, assignments of rents, receiverships, prepayment, foreclosure, priorities, California antideficiency legislation, impact of borrower bankruptcy on mortgage lenders, construction lending, future advances lending, and secondary market. S/U or letter grading.

**277A. Real Estate Finance Law. (3, 4)** Lecture, three hours. Course 277A is enforced requisite to 277B. Concentrated study of law governing financing of land transactions from both national and California perspectives. Topics include California deed of trust, installment land contracts and other mortgaging substitutes, assignments of rents, receiverships, prepayment, foreclosure, priorities, California antideficiency legislation, impact of borrower bankruptcy on mortgage lenders, construction lending, future advances lending, and secondary market. Concurrently scheduled with Law 209. In Progress grading (credit to be given only on completion of course 277B).

**277B. Real Estate Finance Law. (1, 2)** Lecture, three hours. Enforced requisite: course 277A. Continuation of course 277A. Concentrated study of law governing financing of land transactions from both national and California perspectives. Topics include California deed of trust, installment land contracts and other mortgaging substitutes, assignments of rents, receiverships, prepayment, foreclosure, priorities, California antideficiency legislation, im-

part of borrower bankruptcy on mortgage lenders, construction lending, future advances lending, and secondary market. Concurrently scheduled with Law 209. S/U or letter grading.

**278A. Urban Real Estate Financing and Investing (4)** Lecture, three hours. Requisites: courses 408, 430. Investor-oriented course in which real estate and business trends are evaluated to determine alternative real estate investment opportunities. Use of current financial, economic, and investment theories and techniques to real estate investment opportunities in case studies and short case problems to illustrate development of investment strategies. S/U or letter grading.

**279A. Cases in Real Estate Investments (4)** Lecture, three hours. Requisites: courses 408, 430. Development of understanding of principal issues involved with real estate investment and finance. Topics include real estate financial analysis and valuation in variety of contexts (single and multifamily residential, commercial/industrial, shopping center, and hotel properties), real estate taxation, real estate law, development process, securitization, REITs, and leasing and workout of troubled properties. S/U or letter grading.

**279B. Entrepreneurial Real Estate Development (4)** Lecture, three hours. Requisites: courses 278A (or 279A), 408, 430. Introduction to various aspects of real estate development from perspectives of entrepreneur and investor. Coverage of all types of developments, including single family, multifamily, hotel, office, retail, and industrial. Industry guest speakers to help reinforce principles taught. Real estate development simulation and group presentations to panel of investors included. S/U or letter grading.

**279C. Real Estate Economics, Capital Markets, and Securitization (4)** Lecture, three hours. Exploration of linkages between real estate, macroeconomy, and capital markets. New insights as to structure and practice of macroeconomic regulation, crisis policy formulation, and related capital markets and real estate outcomes. Letter grading.

**281B. People in Organizations (4)** Designed for graduate students. Introduction to different philosophical perspectives for understanding human behavior. Theories and concepts important for understanding human behavior in organizations, as well as managerial implications of individual, group, and social behavior. Special attention to knowledge about satisfaction, motivation, and productivity in organizations.

**282. Optimizing Team Performance (4)** Lecture, three hours. Enforced requisites: courses 409, 414A. Optimization of team performance by diagnosing complex team dynamics and taking appropriate action to improve team functioning to help students strengthen their teamwork skills in ways that are proven to increase effectiveness and performance of teams. Letter grading.

**284C. Managing Entrepreneurial Organizations (4)** Lecture, three hours. Issues involved in developing and managing entrepreneurial organizations. Topics include organizational growth, managerial tools, strategic planning, organizational design, management development, control systems, leadership, and cultural management. Examination of transitions that individuals must make as organizations grow. S/U or letter grading.

**285A. Leadership, Motivation, and Power (4)** Discussion, three hours. Designed for graduate students. Theoretical and practical approaches to influencing and motivating people. Relative effectiveness of various leadership styles, different motivation theories, and power tactics from managerial point of view. Use of experience-based learning methods to aid diagnosis and understanding of one's own influence styles. S/U or letter grading.

**285B. Managerial Interpersonal Communication (4)** Discussion, three hours. Designed for graduate students. Interpersonal and personality factors affecting managerial communications. Styles and modes of communication in one-to-one, group, and large-systems settings. Opportunities offered to deepen understanding of one's own communication styles and skills, considering verbal, nonverbal perceptual, and cross-cultural aspects. S/U or letter grading.

**286. Negotiations Behavior (4)** Discussion, three hours. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn not only to enhance their individual abilities in dyadic and group situations, but also to analyze contexts for most effective application of these skills. S/U or letter grading.

**291. Strategies for Technology-Based Corporate Development (4)** Lecture, three hours. Enforced requisite: course 420. Focus on key aspects of corporate business development transactions, including strategic deal selection, mergers and acquisitions deal integration, deal structure (including accounting and tax issues), and economic analysis of transactions. Examination of technology and digital media markets. Letter grading.

**292B. Growth, Science, and Technology (4)** (Same as Public Policy M280B.) Lecture, three hours. Economic growth and change. Role of advances in science and technology, and actions of maximizing innovators and factors impinging on their behavior. How technological breakthroughs (or discontinuities) can form new industries or transform nature of and population of firms in existing industries. S/U or letter grading.

**293A. Political Environment of American Business (4)** (Same as Public Policy M281.) Lecture, three hours. Evaluation of certain criticisms made by business of American political system. Designed to provide clearer understanding of principal features of American politics, especially as they influence business enterprise. S/U or letter grading.

**293C. Ethical Considerations in Business (4)** Lecture, three hours. Examination of a range of ethical considerations in business decisions involving the individual, corporation, society, and international business. Analysis of cases for classroom presentation and discussion.

**294. Law and Economics Workshop. (2, 3)** Seminar, two hours. Requisite: course 405 or Economics 201A. Knowledge of empirical methods and basic calculus required. Interdisciplinary speaker series bringing together outside speakers with scholars and students from UCLA Law School and academic departments. Topics include contracts, torts, intellectual property, and business law. Students write graded reaction papers. May be repeated for credit. Concurrently scheduled with Economics 206 and Law 648. S/U or letter grading.

**295A. Entrepreneurship and Venture Initiation (4)** Exploration in entrepreneurship particularly concerned with formation and operation of new business ventures. Significant and crucial aspects of exploring new business opportunities and starting a business.

**295B. Family Business (4)** Lecture, three hours. Overview of family business, including what is required for family harmony and business continuity. S/U or letter grading.

**295C. Corporate Entrepreneurship (4)** Inquiry into nature of entrepreneurship and effective implementation of entrepreneurial strategies in large industrial enterprises. Emphasis primarily on managerial effects aimed at identification, development, and exploitation of technical and organizational innovations, management of new product or process developments, and effective new venture management in a corporate context.

**295D. Business Plan Development (4)** Lecture, three hours. Enforced requisite: course 295A. Fundamentals of developing effective written business plans. Basic principles of developing plans for sales, marketing, product or service, operations, financials, and management and staffing functions of new startup businesses. S/U or letter grading.

**295F. Social Entrepreneurship (4)** Lecture, three hours. Exposes future change leaders to different business models for social impact and to fundamental opportunities and challenges of designing, funding, managing, and scaling enterprises with social mission. Through lectures, readings, case studies, speakers and research project, exploration of competitive advantages and limitations of different approaches to creating social impact across sectors—private/for profit, public, and nonprofit. Introduction of frameworks for understanding and analyzing problems facing society and cultivation of critical thinking skills to identify diverse ways to address those problems through sustainable programs and enterprises. Letter grading.

**296. Social Impact Consulting (4)** Lecture, three hours. Builds skills and competencies of students interested in field of social impact consulting. Through lectures, readings, videos, speakers, and consulting project with social impact organization, students learn and then apply key consulting skills—both consulting-focused, such as project scoping and client management, and nonprofit-focused, such as governance and strategy, impact measurement, and sources of funding. Readings and discussion expose students to best practices of high-performing nonprofits as well as how diversity, equity, and inclusion can create competitive advantage and increase impact of social impact organizations. Letter grading.

**296A. International Business Management (4)** Discussion, three hours. Identification, analysis, and resolution of managerial issues of policy and action within context of a multinational corporation, with emphasis on problems of adaptation to different sociological, cultural, legal, political, and economic environmental characteristics on planning, structuring of organizational relationships, and coordination and control in multinational firms. S/U or letter grading.

**297B. International Business Strategy (4)** Discussion, three hours. Analysis of key strategic problems encountered by multinational corporations entering foreign markets. Application of concepts and theories acquired in other courses to series of complex cases on international business or by use of a complex simulation of competition in global markets. Letter grading.

**297C. International Business Law (4)** Prerequisites: courses 205A, 296A. Legal environments in which international business operates; overseas business relationships and organizations; antitrust, taxation, transfer of capital, and technology regulations; patent, trademark, and copyright safeguards; arbitration of international business disputes; expropriation of foreign investments; international business and government relations.

**297D. International Business Negotiations (4)** Prerequisite: course 296A. Exploration of international business negotiations of multinational enterprises with governmental agencies and foreign-based firms on a wide range of issues, such as establishment/dissolution of joint ventures, extent of foreign ownership/management control, terms/conditions for technology transfer, investment incentives.

**297E. Business and Economics in Emerging Markets (4)** Lecture, three hours. Requisite: course 205A or 405. Analysis of changing economic, political, demographic, and sociocultural conditions in developing countries as they affect the business environment. Process of economic growth, market-oriented reforms, and creation of domestic capital markets. Inflation and stabilization programs, identification of business risks and opportunities, as well as tools needed to manage firms under these conditions. S/U or letter grading.

**298D. Special Topics in Management (4)** Lecture, three hours. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. Letter grading.

**298E. Special Topics in Management (2)** Lecture, 90 minutes. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. Letter grading.

**298F. Special Topics in Management (1)** Lecture, one hour. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. Letter grading.

**298G. Special Topics in Management (4)** Lecture, three hours. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U grading.

**298H. Special Topics in Management (2)** Lecture, 90 minutes. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U grading.

**298I. Special Topics in Management (1)** Lecture, one hour. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U grading.

**406. Global Macroeconomy (4)** Lecture, three hours. Requisites: courses 402, 403, 405. Provides analytical framework required for understanding way changing macroeconomic conditions in world economy affect economic growth, inflation, interest rates behavior, exchange rate determination, global competitiveness, unemployment, and trade account. Provides skills to enable students to assess critically how developments in world economy affect particular industry environments. Letter grading.

**407. Business Analytics with Spreadsheets (4)** Lecture, three hours. Requisite: course 402. Introduction to uses of analytical methods for making strategic, tactical, and operational decisions arising from accounting, finance, marketing, and production, with focus on three key areas in problem solving: formal problem definition, spreadsheet model formulation, alternatives evaluation. Letter grading.

**422. Analysis and Communications (4)** Discussion, three hours. Prerequisite: graduate standing. Study and practice of oral and written management communications, including audience analysis, persuasion, revising and editing, presentation of technical information, and uses of computer technology. Organized around writing and speaking exercises. Personal attention to students' written communications and oral presentations.

**424. Strategic Business Presenting (2)** Lecture, 90 minutes. Improvement of strategic business presenting skills such as presentation delivery techniques, visual and verbal persuasion principles, building arguments with supporting evidence, art of business storytelling, and other related topics, with focus on individual student presentations. Letter grading.

**425. Leadership Communication (4)** Lecture, three hours. Study centers on communicative dimensions of leadership, executive presence, and persuasion. Frameworks allow for emerging and current leaders to excel in presenting sticky messages to investors, executives, boards, clients, and others. Hands-on nature of course allows for considerable communication practice. Student presentations are videotaped and analyzed. Topics include communicating with executive presence, strategic networking, designing compelling

visuals, engaging with data, making complex (and technical) information understandable, overcoming message resistance, and creating clear and concise messages. Also covered are question and answer methods, leadership storytelling, and ways to grab and keep attention. Examination of delivery variables such as verbal and non-verbal communication. Message topics can be generated from student needs (e.g., venture capital investors pitch, senior executives or client presentation). S/U or letter grading.

**430. Corporate Finance (4)** Lecture, three hours. Requisite: course 408. Consideration of broad range of issues faced by corporate financial managers. Analysis of firm's investment and financing decisions. Impact on firm of agency costs and asymmetric information. Study of mergers and acquisitions through use of empirical studies. Security design also covered. Letter grading.

**455E. International Exchange Program. (2 to 16)** Lecture, 30 hours; discussion, 10 hours. Students attend up to four MBA-level courses at institutions with exchange agreements with Anderson School. Some courses may be taught in local language. In addition to learning subject matter of courses, provides opportunity for students to enhance their knowledge of region while exchanging ideas and views with their peers at that institution. S/U grading.

**457A. Fieldwork in Investment Management (2)** Seminar, two hours; fieldwork, one hour. Four-term course. Introduction to academic theories of portfolio management and management structure. Review of literature to identify investment strategies. Knowledge transfer and training before outgoing and incoming class leadership transition. In Progress grading (credit to be given only on completion of courses 457B, 457C, and 457D).

**457B. Fieldwork in Investment Management (2)** Seminar, two hours; fieldwork, one hour. Four-term course. Faculty-guided portfolio-management implementation. Back testing of investment strategy. Visits to portfolio management firms to gain expert guidance. In Progress grading (credit to be given only on completion of courses 457C and 457D).

**457C. Fieldwork in Investment Management (2)** Seminar, two hours; fieldwork, one hour. Four-term course. Monitoring of implemented strategy. Documentation and analysis of portfolio performance. Development of new strategy for incoming class. In Progress grading (credit to be given only on completion of course 457D).

**457D. Fieldwork in Investment Management (2)** Seminar, two hours; activity, one hour. Four-term course. Culmination and transition of portfolio management project. Formal presentation of new strategy to incoming class and delivery of annual report. Training of incoming class with knowledge transfer and dissemination of tools for back testing. Letter grading.

**458A. Global Immersion: Two-Quarter Plan (2)** Lecture, three hours; presentations, site visits, and discussion, 20 hours. Course 458A is enforced requisite to 458B. Taught in English. Designed for MBA, EMBA, FEMBA, and GEMBA students. Four on-campus academic sessions and one intensive week in another country for blend of lectures, guest speakers, panel discussions, and company site visits, with focus on doing business in other countries. Exposure to economy, legal and political environment, major industries and businesses, local culture, key historical events, and many aspects of conducting business outside U.S. Taught by school faculty members in conjunction with lectures by faculty members from top institutional partners, as well as local and regional government officials and ministers, local business executives, and influential leaders from country of focus. May be repeated for credit based on program requirements. In Progress grading (credit to be given only on completion of course 458B).

**458B. Global Immersion: Two-Quarter Plan (2)** Fieldwork, three hours; presentations, site visits, and discussion, 20 hours. Enforced requisite: course 458A. Taught in English. Designed for MBA, EMBA, FEMBA, and GEMBA students. Four on-campus academic sessions and one intensive week in another country for blend of lectures, guest speakers, panel discussions, and company site visits, with focus on doing business in other countries. Exposure to economy, legal and political environment, major industries and businesses, local culture, key historical events, and many aspects of conducting business outside U.S. Taught by school faculty members in conjunction with lectures by faculty members from top institutional partners, as well as local and regional government officials and ministers, local business executives, and influential leaders from country of focus. May be repeated for credit based on program requirements. Letter grading.

**459E. International Exchange (4)** Lectures/discussion, 30 hours (one week). Preparation: completion of first-year core courses. Open to EMBA and FEMBA students. Taught in English. Intensive one-week study at international partner university. Taught by faculty members from partner institution in destination country. Topics vary but are tailored to MBA curriculum. May be repeated once for credit. Letter grading.

**460A. Managing Finance and Financing Emerging Enterprises (2)** Lecture, three hours. Course 460A is enforced requisite to 460B. Designed for second-year graduate students. Emphasis on financial, control, and investment issues confronting rapidly growing companies in entrepreneurial settings. Consideration and selection of financing vehicles that may be appropriate to securing money requirements of organizations. In Progress grading (credit to be given only on completion of course 460B).

**460B. Managing Finance and Financing Emerging Enterprises (2)** Lecture, three hours. Enforced requisite: course 460A. Designed for second-year graduate students. Emphasis on financial, control, and investment issues confronting rapidly growing companies in entrepreneurial settings. Consideration and selection of financing vehicles that may be appropriate to securing money requirements of organizations. Letter grading.

**466B. Advanced Financial Policy for Managers (4)** Lecture, four hours. Limited to Executive MBA Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, portfolio investment decisions, financial institutions, and international financial management. Focus on learning sound theoretical tools and applying them in casework. S/U or letter grading.

**468. Macroeconomics and Economic Forecasting (4)** Lecture, four hours. Limited to Executive MBA Program students. Macroeconomic theory and its application to business forecasting. Major economic indicators and their historical description of the U.S. economy; theoretical tools that business economists use to analyze impacts of monetary and fiscal policy; macroeconomic techniques applicable to business decisions. S/U or letter grading.

**472B. Customer Information Strategy (4)** Lecture, four hours. Limited to Executive MBA Program students. Exploration of innovation and marketing of products and services to customers. Use of creativity tools, customer research, and marketing science to create value and allocate resources so as to maximize revenues and profits that result. S/U or letter grading.

**479E. International Exchange: Executive MBA Program. (2 to 4)** Lecture, three hours; discussion and site visits, 20 hours. Preparation: completion of first-year core courses in Executive MBA Program. Intensive one-week program in one foreign country, with courses taught by faculty members from partner institutions in destination country. Topics vary but are tailored to MBA curriculum, including but not limited to finance, marketing, global economics, strategy, human resources, operations, and technology management. Exposure to local business practices, company site visits, and exploration of local cultural and historical sites. S/U or letter grading.

**481A. Negotiations Behavior (2)** Lecture, three hours. Course 481A is enforced requisite to 481B. Limited to Global Executive MBA students. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn to enhance their individual abilities in dyadic and group situations and to analyze contexts for most effective application of these skills. In Progress grading (credit to be given only on completion of course 481B).

**481B. Negotiations Behavior (2)** Lecture, three hours. Enforced requisite: course 481A. Limited to Global Executive MBA students. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn to enhance their individual abilities in dyadic and group situations and to analyze contexts for most effective application of these skills. Letter grading.

**484A. Management of Technology and Innovation (2)** Lecture, three hours. Course 484A is enforced requisite to 484B. Limited to Global Executive MBA students. Problems of managing technological innovation in Asia. Topics include incorporation of technological consideration into strategy, adoption of technological innovation, promoting innovation through organizational design and leadership, e-business, and m-business. In Progress grading (credit to be given only on completion of course 484B).

**484B. Management of Technology and Innovation (2)** Lecture, three hours. Enforced requisite: course 484A. Limited to Global Executive MBA students. Problems of managing technological innovation in Asia. Topics include incorporation of technological consideration into strategy, adoption of technological innovation, promoting innovation through organizational design and leadership, e-business, and m-business. Letter grading.

**485. Corporate Entrepreneurship (4)** Lecture, three hours. Managerial efforts aimed at identification, development, and exploitation of technical and organizational innovations, management of new product or process developments, and effective new venture management in context of large corporations in manufacturing and service industries. Development of awareness and understanding of range, scope, and complexity of issues related to creation of or-

ganizational environment that is supportive of entrepreneurial endeavors, and insight concerning effective implementation of technological and organizational innovations in corporate setting. Letter grading.

**488. Business Plan Development (4)** Lecture, four hours. Enforced requisites: courses 487A, 487B. Limited to Executive MBA Program students. How to develop business plans, understanding of analytical processes required to produce plans, improvement of student writing and oral presentation skills, and review of business plans of other entities. Writing of one complete business plan and presentation of it to experienced investors. Letter grading.

**489. Entrepreneurship and Venture Initiation (4)** Lecture, 90 minutes. Limited to Executive MBA Program students. Introduction to basic tools and jargon required for entrepreneurship that requires financing or management of intellectual property. Terminology used by lawyers, accountants, venture capitalists, and other investors when forming and financing new companies. Assessment of feasibility of business concept and communication of concept to potential investors, employees, and business partners. S/U or letter grading.

**495. Teaching Assistant Training Seminar (2)** Seminar, 90 minutes. Required to serve as teaching assistant, associate, or fellow in Anderson-based course. Introduction to universal teaching and learning issues, core pedagogical principles and practices, and strategies for promoting and assessing student learning outcomes. Designed to prepare students for graduate-level teaching and provide professional development. Discussion of practical and theoretical issues about teaching in a graduate business school. Emphasis on adult learning theory and pedagogy, theory versus practice in business, and electronic data interchange (EDI) initiatives within business school academic settings. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA AGSM graduate adviser and assistant dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Research in Management (1 to 8)** Directed individual study or research. May be repeated. S/U or letter grading.

**597. Preparation for Qualifying Examinations (4 to 12)** Preparation for master's comprehensive examination or PhD qualifying examinations. S/U grading.

**598. Thesis Research in Management (4 to 12)** Research for and preparation of master's thesis. May be repeated. S/U grading.

**599. PhD Dissertation Research in Management (4 to 12)** Research for and preparation of PhD dissertation. S/U grading.

## Management—Executive MBA Courses

### Graduate

**260B. Marketing Strategy and Resource Allocations (4)** Lecture, three hours. Requisite: course 411. Offers in-depth understanding of the practical challenges of marketing strategy. Students sharpen critical analytical thinking and effective communication skills. Offers conceptual frameworks and hones the creative and analytical skills that are necessary to deal with uncertainty inherent in marketing strategy. Focus on problem solving and integrating the marketing and business background obtained in core courses. Letter grading.

**402. Data Analysis and Management Decisions under Uncertainty (4)** Lecture, four hours. Limited to Executive MBA program students. Survey of statistical model building, with emphasis on managerial interpretation of statistical summary of data. Classical statistics covered through multiple regression to support courses in finance and marketing that follow. Fundamental approaches to decision making under uncertainty. S/U or letter grading.

**403. Financial Accounting (4)** Lecture, six hours. Limited to Executive MBA program students. Familiarizes the manager with functions of accounting by focusing on use of external financial reports for evaluating corporate performance and use of accounting information for internal planning and control. S/U or letter grading.

**405. Economic Analysis for Managers (4)** Limited to Executive MBA program students. Policy-oriented problems in antitrust, tax securities, and environmental regulation. Concepts of microeconomic theory illustrated. Topics include traditional antitrust regulations, new trends in antitrust, private versus government antitrust, securities regulation, environmental regulations, and a business firm's optimal response to regulation.

**408. Financial Policy for Managers (4)** Lecture, four hours. Limited to Executive MBA program students. Modern financial management deals with decision making under uncertainty for corporate financial management, portfolio



investment decisions, financial institutions, and international financial management. Focus on learning sound theoretical tools and applying them in casework. S/U or letter grading.

**409. Organizational Behavior (4)** Lecture, three hours. Limited to Executive MBA program students. Introduction to organizational behavior for executives, including but not limited to optimal decision making, fostering motivation, and other topics on psychology of leadership. Lecture, discussion, and experiential applications of course concepts. S/U or letter grading.

**410. Operations and Technology Management: Systems, Strategies, and Policies (4)** Lecture, three hours. Limited to Executive MBA program students. Analysis of strategic and operating policies and decisions for systems that produce goods and services. Examination of role of comprehensive planning, inventories, scheduling of resources, distribution systems, and system location. Comprehensive operating problems. S/U or letter grading.

**411. Marketing Management (4)** Lecture, four hours. Limited to Executive MBA program students. Strategic marketing decisions, including development of marketing objectives and strategies and implementation of these strategies through pricing, channel, promotion, and new product decisions. S/U or letter grading.

**414A. Foundations of Inclusive Leadership (2)** Lecture, two hours. Designed to enhance student knowledge of, and competency in, leadership. Conceptual framework for study is grounded in principles of individual, group, and organizational behavior. Offers different perspectives on the topic of leadership, with emphasis on development of skills that support effective leadership in diverse situations. Combination of readings, lectures, cases, experiential exercises, and class discussion allows entering MBA students to determine their own leadership strengths and limitations, and to develop a plan for maintaining or improving their strengths and identifying potential challenges. Letter grading.

**414B. Foundations of Ethical Decision Making (1)** Lecture, one hour. Limited to Executive MBA program students. Continuation of course 414A, with focus on development of self-assessment and self-reflection skills. Facilitation of self-evaluation of leadership strengths and weaknesses, with emphasis on individual problem solving and decision making and team design and development. Readings, cases, decision simulations, peer coaching, and discussions. In Progress grading (credit to be given only on completion of course 414C).

**414C. Foundations of Ethical Decision Making (1)** Lecture, one hour. Limited to Executive MBA program students. Continuation of course 414B. Further exploration of leadership strengths and weaknesses, with emphasis on individual peer coaching, conflict management, individual goal setting, and goal achievement. Readings, cases, decision simulations, peer coaching, and discussions. Letter grading.

**414D. Foundations of Transformative Leadership (1)** Lecture, one hour. Limited to Executive MBA program students. Continuation of course 414C. Facilitation of self-evaluation of leadership strengths and weaknesses, with emphasis on career development, social networks, and organizational design. Readings, cases, decision simulations, peer coaching, and discussions. In Progress grading (credit to be given only on completion of course 414E).

**414E. Foundations of Transformative Leadership (1)** Lecture, one hour. Limited to Executive MBA program students. Continuation of course 414D. Further exploration of leadership strengths and weaknesses, with emphasis on individual leadership and organizational change. Readings, cases, decision simulations, peer coaching, and discussions. S/U grading.

**416. Global Economics and Business Cycles (2)** Lecture, three hours. Requirement: course 405. Comprehensive introduction to macroeconomics, with focus on real-world applications and implications. Provides students—as future decision-makers in the business world—with a framework through which to analyze domestic and global macroeconomic fluctuations and trends that impact the business environment. Study of models of long-run and short-run macroeconomy, economic growth and competitiveness, unemployment and inflation, and exchange and interest rates. Includes case studies such as domestic and global consequences of 2007 to 2009 Great Recession, 2020 COVID-19 shock and subsequent inflation, growth stagnations of USSR (1970s and 1980s) and Japan (1990s to present), and Latin American debt crises of 1990s. Letter grading.

**420. Competitive Strategy and Business Policy (4)** Limited to Executive MBA program students. Study of general management task of forging a corporate competitive strategy. Emphasis on economics of business rivalry within a variety of industrial settings and implications of changing environments on business strategy.

**421. International Business Residential (4)** Seminar, six hours. Limited to Executive MBA program students. Focuses on doing business globally. Includes on-campus sessions and intensive week of study in another country with lectures, guest speakers, panel discussions, and company site visits. Exposure

to economic, legal and political environments, major industries and businesses, local culture, key historical events, and many aspects of conducting business internationally. Taught by school faculty members in conjunction with lectures by faculty members from top institutional partners, as well as local and regional government officials and ministers, local business executives, and influential leaders from country of focus. S/U or letter grading.

**422. Leadership in Practice (4)** Lecture, six hours. Limited to Executive MBA program students. Addresses practical decision-making challenges leaders face when confronting decisions alone and in groups. Students learn to recognize cognitive biases in themselves and in others and gain skills to re-calibrate group dynamics in order to achieve better results. These skills are taught experientially through participatory simulations and post-hoc analyses. Letter grading.

**423A. Strategic Management Research Capstone (4)** Seminar and fieldwork, four hours. Limited to Executive MBA program students. Must be taken after completion of all other required core courses. Seminar includes practical workshops, collaborative activities, and activation of student prior knowledge from core curriculum. Fieldwork includes faculty-guided consulting project with private companies, nonprofit organizations, or government agencies. Students are helped to effectively manage and execute real world projects. In Progress grading (credit to be given only on completion of course 423B).

**423B. Strategic Management Research Capstone (4)** Fieldwork, four hours. Limited to Executive MBA program students. Must be taken after completion of all other required core courses. Fieldwork includes faculty-guided consulting project with private companies, nonprofit organizations, or government agencies; establishment of client relationships, identification of problems, design of study, collection and analysis of research data, development of comprehensive business plan, and presentation of findings and recommendations. Provides an opportunity to apply knowledge gained in the program to strategic issues in real organizations. Letter grading.

**428A. Business Creation Capstone (4)** Lecture and fieldwork, three hours. Limited to Executive MBA program students. Designed for students interested in launching their own business. Student teams develop and analyze a business idea and develop a plan for financing and launching that business. Fulfills EMBA comprehensive examination requirement. In Progress grading (credit to be given only on completion of course 428B).

**428B. Business Creation Capstone (4)** Lecture and fieldwork, three hours. Limited to Executive MBA program students. Designed for students interested in launching their own business. Student teams develop and analyze a business idea and develop a plan for financing and launching that business. Fulfills EMBA comprehensive examination requirement. Letter grading.

**439. Selected Topics in Management (4)** Seminar, six hours. Limited to Executive MBA program students. Examination of selected problems and issues in area of current concern in management. Letter grading.

**440. Selected Topics in Management (2)** Seminar, three hours. Limited to Executive MBA program students. Examination of selected problems and issues in area of current concern in management. Letter grading.

**441. Selected Topics in Management (1)** Seminar, two hours. Limited to Executive MBA program students. Examination of selected problems and issues in area of current concern in management. Letter grading.

**442. Selected Topics in Management (4)** Seminar, six hours. Limited to Executive MBA program students. Examination of selected problems and issues in area of current concern in management. S/U grading.

**443. Selected Topics in Management (2)** Seminar, three hours. Limited to Executive MBA program students. Examination of selected problems and issues in area of current concern in management. S/U grading.

**444. Selected Topics in Management (1)** Seminar, two hours. Limited to Executive MBA program students. Examination of selected problems and issues in area of current concern in management. S/U grading.

**445A. Introduction to Strategic Management Research (2)** Fieldwork, two hours. Limited to Executive MBA program students. Methods of organizational and strategic analysis to determine relationship of organization with its environment. In Progress grading (credit to be given only on completion of courses 445B and 445C).

**445B. Strategic Management Research (4)** Fieldwork, four hours. Limited to Executive MBA program students. Preparation of strategic overview of selected company entailing collection and analysis of primary and secondary data, including (but not limited to) interviews of corporate executives, corporate financial and marketing data, industry reports, and customer and competitor interviews and/or surveys. In Progress grading (credit to be given only on completion of course 445C).

**445C. Strategic Management Research (4)** Fieldwork, four hours. Limited to Executive MBA program students. Further research and analysis of one strategic issue facing selected company and identified in course 445B. Presentation of final reports and evaluation of student efforts by corporate personnel. S/U or letter grading.

**470. Advanced Business Strategy: Managing the Non-Market Environment (4)** Lecture, three hours. The analytical framework for non-market strategy goes beyond that of traditional competitive strategy. Non-market strategy is an emerging discipline which combines elements of competitive strategy, political science, and corporate social responsibility (i.e., environmental, social, and governance factors). Students gain ability to see new opportunities and risks, and are equipped to manage them. Letter grading.

## Management—Fully Employed MBA Courses

### Graduate

**401. Foundations of Inclusive Leadership (2)** Lecture, three hours. Designed to enhance student knowledge of, and competency in, leadership. Conceptual framework is grounded in principles of individual, group, and organizational behavior. Offers different perspectives on topic of leaderships, with emphasis on development of skills that support effective leadership in diverse situations. Combination of readings, lectures, cases, experiential exercises, and class discussion allows entering MBA students to determine their own leadership strengths and limitations; and to develop plan for maintaining or improving their strengths and identifying potential challenges. Letter grading.

**402. Data and Decisions (4)** Lecture, three hours. Topics include probabilities, random variables (expectation, variance, covariance, normal random variables), decision trees, estimation, hypothesis testing, and multiple regression models. Emphasis on actual business problems and data. Letter grading.

**403. Financial Accounting (4)** Lecture, three hours. Designed for graduate students. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of language of business—accounting. Letter grading.

**405. Managerial Economics (4)** Lecture, three hours. Designed for graduate students. Analysis of consumer, producer, and market behavior. Market structure, pricing, and resource allocation. Applications to managerial strategy and public policy, with emphasis on competition, market power, and externalities. Letter grading.

**408. Foundations of Finance (4)** Lecture, three hours. Introduction to managerial finance. Topics include time value of money, discounting and present values, valuation of bonds and stocks, risk and return, construction of optimal portfolios, capital budgeting, and weighted average cost of capital. Letter grading.

**409. Organizational Behavior (4)** Lecture, three hours. Requisite: course 401. Introduction to human resource management function and management of human behavior in organizations. Emphasis on relationships among individuals, groups, and organizational units as they influence managerial process and development of prospective general managers. Letter grading.

**410. Operations Technology Management (4)** Lecture, three hours. Requisites: courses 402, 403. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. Production organizations, analytical models and methods, facilities design, and design of control systems for production operations. Letter grading.

**411. Marketing Management (4)** Lecture, three hours. Principles of market-driven managerial decision making: consumer, competitor, and company analysis, market segmentation, definition of target markets, and product positioning. Management of marketing function: product and pricing decisions, channels of distribution, marketing communications. Letter grading.

**420. Business Strategy (4)** Lecture, three hours. Evaluation and formulation of organization's overall policies and strategies. Economic, heuristic, and social process approaches to policy formulation, environmental analysis, and organizational appraisal. Senior management's role in managing policy process. Letter grading.

**422. Applied Management Research (8)** Fieldwork, eight hours. Must be taken in third year. Supervised study of an organization, including establishment of client/consultant relationships, identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. Letter grading.

**426. Fieldwork in Organizations (4)** Fieldwork, to be arranged. Preparation: completion of at least three terms of FEMBA program. Under direction of FEMBA program senior associate dean or other supervising faculty adviser, students perform supervised practical experience or fieldwork in organization as intern or fellow. Execution of predetermined assignment(s) pursuant to defined program of study that includes reporting and assessment of fieldwork experience through combination of written or oral presentations and may include preparation of evaluations or consulting report correlating to defined program of study. S/U grading.

**427A. Global Access Program (5)** Fieldwork, 60 hours. Requisites: courses 401, 402, 403, 405, 408, 409, 410, 411, 420. Limited to Fully Employed MBA Program students. Must be taken in third year. Faculty-guided consulting project with international company or U.S. company with international project focus. Establishment of client relationships, identification of problems or strategic questions, design of study, collection and analysis of secondary and primary research data, development of comprehensive business plan, and formal presentation of findings and recommendations. In Progress grading (credit to be given only on completion of course 427B).

**427B. Global Access Program (5)** Fieldwork, 60 hours. Requisites: courses 401, 402, 403, 405, 408, 409, 410, 411, 420. Limited to Fully Employed MBA Program students. Must be taken in third year. Faculty-guided consulting project with international company or U.S. company with international project focus. Establishment of client relationships, identification of problems or strategic questions, design of study, collection and analysis of secondary and primary research data, development of comprehensive business plan, and formal presentation of findings and recommendations. Letter grading.

**428A. Business Creation Capstone (6)** Lecture, three hours; fieldwork, three hours. Limited to fully-employed MBA program students. Designed for students interested in launching their own business. Student teams work on business idea and develop comprehensive strategy for launching that business. Fulfills FEMBA comprehensive examination requirement. In Progress grading (credit to be given only on completion of course 428B).

**428B. Business Creation Capstone (4)** Lecture, three hours; fieldwork, three hours. Limited to fully employed MBA program students. Designed for students interested in launching their own business. Student teams work on business idea and develop comprehensive strategy for launching that business. Fulfills FEMBA comprehensive examination requirement. Letter grading.

## Management—Full-Time MBA Courses

### Graduate

**401A. Foundations of Inclusive Leadership (1)** Lecture, three hours. Designed to enhance student knowledge of, and competency in, leadership. Conceptual framework is grounded in principles of individual, group, and organizational behavior. Offers different perspectives on topic of leaderships, with emphasis on development of skills that support effective leadership in diverse situations. Combination of readings, lectures, cases, experiential exercises, and class discussion allows entering MBA students to determine their own leadership strengths and limitations; and to develop plan for maintaining or improving their strengths and identifying potential challenges. In Progress grading (credit to be given only on completion of course 401B).

**401B. Foundations of Inclusive Leadership (1)** Lecture, three hours. Requisite: course 401A. Designed to enhance student knowledge of, and competency in, leadership. Conceptual framework is grounded in principles of individual, group, and organizational behavior. Offers different perspectives on topic of leaderships, with emphasis on development of skills that support effective leadership in diverse situations. Combination of readings, lectures, cases, experiential exercises, and class discussion allows entering MBA students to determine their own leadership strengths and limitations; and to develop plan for maintaining or improving their strengths and identifying potential challenges. Letter grading.

**402. Data and Decisions (4)** Lecture, three hours. Topics include probabilities, random variables (expectation, variance, covariance, normal random variables), decision trees, estimation, hypothesis testing, and multiple regression models. Emphasis on actual business problems and data. Letter grading.

**403. Financial Accounting (4)** Lecture, three hours. Designed for graduate students. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of language of business—accounting. Letter grading.

**405. Managerial Economics (4)** Lecture, three hours. Designed for graduate students. Analysis of consumer, producer, and market behavior. Market structure, pricing, and resource allocation. Applications to managerial strategy and public policy, with emphasis on competition, market power, and externalities. Letter grading.

**408. Foundations of Finance (4)** Lecture, three hours. Introduction to managerial finance. Topics include time value of money, discounting and present values, valuation of bonds and stocks, risk and return, construction of optimal portfolios, capital budgeting, and weighted average cost of capital. Letter grading.

**409. Organizational Behavior (4)** Lecture, three hours. Requisites: courses 401A, 401B. Introduction to human resource management function and management of human behavior in organizations. Emphasis on relationships among individuals, groups, and organizational units as they influence managerial process and development of prospective general managers. Letter grading.

**410. Operations Technology Management (4)** Lecture, three hours. Requisites: courses 402, 403. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. Production organizations, analytical models and methods, facilities design, and design of control systems for production operations. Letter grading.

**411. Marketing Management (4)** Lecture, three hours. Principles of market-driven managerial decision making: consumer, competitor, and company analysis, market segmentation, definition of target markets, and product positioning. Management of marketing function: product and pricing decisions, channels of distribution, marketing communications. Letter grading.

**415. Foundations of Ethical Decision Making (2)** Lecture, three hours. Provides practical tools to help students navigate difficult decisions that leaders routinely face. Study adopts behavioral science approach to understanding ethical behavior in order to examine why good people sometimes do bad things. Answering this question requires understanding of fundamental psychological processes that govern human thought and behavior in ethical domains. These processes can lure anyone into ethical lapses that ruin careers, destroy businesses, and bring shame to individuals and organizations. Understanding these processes gives insights into practical ways of designing one's organization to encourage its members to behave in line with their own stated values. Letter grading.

**416. Global Economics and Business Cycles (2)** Lecture, three hours. Requisite: course 405. Comprehensive introduction to macroeconomics, with focus on real-world applications and implications. Provides students—as future decision-makers in business world—with framework through which to analyze domestic and global macroeconomic fluctuations and trends that impact business environment. Study of models of long-run and short-run macroeconomy, economic growth and competitiveness, unemployment and inflation, and exchange and interest rates. Includes case studies such as domestic and global consequences of 2007 to 2009 Great Recession, 2020 COVID-19 shock and subsequent inflation, growth stagnations of USSR (1970s and 1980s) and Japan (1990s to present), and Latin American debt crises of 1990s. Letter grading.

**420. Business Strategy (4)** Lecture, three hours. Evaluation and formulation of organization's overall policies and strategies. Economic, heuristic, and social process approaches to policy formulation, environmental analysis, and organizational appraisal. Senior management's role in managing policy process. Letter grading.

**421A. Communication Development for Leaders (2)** Lecture, three hours. Course 421A is requisite to 421B. Focus on communication basics and tailored to students' needs—entrepreneurship, interpersonal communications, or public speaking. Students learn skills, required to become successful presenter; how to present differing types of materials, apply communication theory and strategy to organize informative and persuasive content, and effectively deliver presentations to varied audiences; how to apply visual and verbal messaging research and theory while analyzing audiences, organize and target messages for maximum persuasive impact, and communicate these messages in persuasive manner. Letter grading.

**421B. Communication Development for Leaders II (2)** Lecture, three hours. Requisite: course 421A. Focus on providing tools and skills that allow students to excel in communicating their vision, inspiring and gaining commitment from stakeholders, and impressing interviewers and investors. Course materials are grounded in empirical research. Skills and techniques learned are broadly generalizable. Experiential exercises to enhance students' abilities in oral and written communications. Study builds on managerial communication skills from Communication Development for Leaders (course 421A). Letter grading.

**422. Applied Management Research (8)** Fieldwork, eight hours. Must be taken in second year (or its equivalent for part-time students). Supervised study of an organization, including establishment of client/consultant relationships, identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. Letter grading.

**423A. Applied Management Research Capstone (4)** Seminar and fieldwork, four hours. Limited to full-time MBA program students. Must be taken after completion of all required management core courses. Practical workshops, collaborative activities, and activation of student prior knowledge from management core curriculum. Faculty-guided consulting project with private companies, nonprofit organizations, or government agencies. Students effectively manage and execute real-world projects. In Progress grading (credit to be given only on completion of course 423B).

**423B. Applied Management Research Capstone (4)** Fieldwork, four hours. Limited to full-time MBA program students. Must be taken after completion of all required management core courses. Faculty-guided consulting project with private companies, nonprofit organizations, or government agencies; establishment of client relationships; identification of problems, design of study, collection and analysis of research data, development of comprehensive business plan, and presentation of findings and recommendations. Application of knowledge gained in the program to strategic issues in real organizations. Letter grading.

**426. Fieldwork in Organizations (4)** Fieldwork, to be arranged. Preparation: completion of at least two terms of MBA program. Required of all full-time MBA students. Under direction of MBA program senior associate dean or other supervising faculty adviser, students perform supervised practical experience or fieldwork in organization as intern or fellow. Execution of predetermined assignment(s) pursuant to defined program of study that includes reporting and assessment of fieldwork experience through combination of written or oral presentations and may include preparation of evaluations or consulting report correlating to defined program of study. S/U grading.

**428A. Business Creation Capstone (4)** Lecture and fieldwork, three hours. Limited to full-time MBA program students. Designed for students interested in launching their own business. Student teams develop and analyze a business idea and develop a plan for financing and launching that business. Fulfills MBA comprehensive examination requirement. In Progress grading (credit to be given only on completion of course 428B).

**428B. Business Creation Capstone (4)** Lecture and fieldwork, three hours. Limited to full-time MBA program students. Designed for students interested in launching their own business. Student teams develop and analyze a business idea and develop a plan for financing and launching that business. Fulfills MBA comprehensive examination requirement. Letter grading.

## Management—Global Executive MBA Asia Pacific Courses

### Graduate

**402. Data and Decisions (4)** Lecture, four hours. Survey of statistical model building, with emphasis on managerial interpretation of statistical summary of data. Classical statistics covered through multiple regression to support courses in finance and marketing that follow. Fundamental approaches to decision making under uncertainty. S/U or letter grading.

**403. Financial Accounting (4)** Lecture, six hours. Familiarizes the manager with functions of accounting by focusing on use of external financial reports for evaluating corporate performance and use of accounting information for internal planning and control. S/U or letter grading.

**404. Negotiations Behavior (4)** Lecture, three hours. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn to enhance their individual abilities in dyadic and group situations and to analyze contexts for most effective application of these skills. Letter grading.

**406. Strategic Leadership and Implementation (4)** (Formerly numbered 406A.) Lecture, three hours. Designed to address several fundamental aspects of leading complex organizations, with emphasis on important tasks of developing well-aligned, high-performance organizations and on challenges of leading change in organizations. Enables students to develop organized point of view on strategic leadership and to increase their awareness of themselves as leaders. Letter grading.

**407A. Entrepreneurship and Venture Initiation I (2)** Lecture, 90 minutes. Course 407A is requisite to 407B. Limited to UCLA-NUS Executive MBA program students. Introduction to basic tools and jargon required for entrepreneurship that requires financing or management of intellectual property. Terminology used by lawyers, accountants, venture capitalists, and other investors when forming and financing new companies. Assessment of feasibility of business concept and communication of concept to potential investors, employees, and business partners. In Progress grading (credit to be given only on completion of course 407B).

**407B. Entrepreneurship and Venture Initiation II (2)** Lecture, 90 minutes. Requisite: course 407A. Limited to UCLA-NUS Executive MBA program students. Introduction to basic tools and jargon required for entrepreneurship that requires financing or management of intellectual property. Terminology used by lawyers, accountants, venture capitalists, and other investors when forming and financing new companies. Assessment of feasibility of business concept and communication of concept to potential investors, employees, and business partners. Letter grading.

**409. Organizational Behavior (4)** Lecture, three hours. Introduction to human resource management function and management of human behavior in organizations. Emphasis on relationships among individuals, groups, and organizational units as they influence managerial process and development of prospective general managers. Letter grading.

**410. Operations Technology Management (4)** Lecture, three hours. Analysis of strategic and operating policies and decisions for systems that produce goods and services. Examination of role of comprehensive planning, inventories, scheduling of resources, distribution systems, and system location. Comprehensive operating problems. Letter grading.

**412. Management of Technology and Innovation (4)** Lecture, three hours. Problems of managing technological innovation in Asia. Topics include incorporation of technological consideration into strategy, adoption of technological innovation, promoting innovation through organizational design and leadership, e-business, and m-business. Letter grading.

**428A. Business Creation Program (2)** Fieldwork, two hours. Capstone for Global Executive Master of Business Administration (GEMBA) program. Offers unique educational experience for GEMBA students interested working on their entrepreneurial ventures and developing a comprehensive strategy for launching that business. Offers opportunity to apply concepts learned in core and entrepreneurship courses to the development of a start-up business. Students formulate strategies for sales, marketing, operations, finance, accounting, and management functions of a start-up business. Students learn how to develop and test hypotheses, to conduct effective primary and secondary research, and to produce a business plan or implementation plan for their start-up business. In Progress grading (credit to be given only on completion of courses 428B and 428C).

**428B. Business Creation Program (4)** Fieldwork, three hours. Capstone for Global Executive Master of Business Administration (GEMBA) program. Offers unique educational experience for GEMBA students interested working on their entrepreneurial ventures and developing a comprehensive strategy for launching that business. Offers opportunity to apply concepts learned in core and entrepreneurship courses to the development of a start-up business. Students formulate strategies for sales, marketing, operations, finance, accounting, and management functions of a start-up business. Students learn how to develop and test hypotheses, to conduct effective primary and secondary research, and to produce a business plan or implementation plan for their start-up business. In Progress grading (credit to be given only on completion of course 428C).

**428C. Business Creation Program (2)** Fieldwork, three hours. Capstone for Global Executive Master of Business Administration (GEMBA) program. Offers unique educational experience for GEMBA students interested working on their entrepreneurial ventures and developing a comprehensive strategy for launching that business. Offers opportunity to apply concepts learned in core and entrepreneurship courses to the development of a start-up business. Students formulate strategies for sales, marketing, operations, finance, accounting, and management functions of a start-up business. Students learn how to develop and test hypotheses, to conduct effective primary and secondary research, and to produce a business plan or implementation plan for their start-up business. Letter grading.

**439. Selected Topics in Management (4)** Seminar, six hours. Limited to UCLA-NUS Executive MBA program students. Examination of selected problems and issues in area of current concern in management. Letter grading.

**440. Selected Topics in Management (2)** Seminar, three hours. Limited to UCLA-NUS Executive MBA program students. Examination of selected problems and issues in area of current concern in management. Letter grading.

**441. Selected Topics in Management (1)** Seminar, two hours. Limited to UCLA-NUS Executive MBA program students. Examination of selected problems and issues in area of current concern in management. Letter grading.

**442. Selected Topics in Management (4)** Seminar, six hours. Limited to UCLA-NUS Executive MBA program students. Examination of selected problems and issues in area of current concern in management. S/U grading.

**443. Selected Topics in Management (2)** Seminar, three hours. Limited to UCLA-NUS Executive MBA program students. Examination of selected problems and issues in area of current concern in management. S/U grading.

**444. Selected Topics in Management (1)** Seminar, two hours. Limited to UCLA-NUS Executive MBA program students. Examination of selected problems and issues in area of current concern in management. S/U grading.

**445A. Management Practicum (2)** Fieldwork, to be arranged. Three-term individual or group (three to five students) project on global strategic issues designed to allow students to employ and enhance concepts learned in classroom. In Progress grading (credit to be given only on completion of courses 445B and 445C).

**445B. Management Practicum (4)** Fieldwork, to be arranged. Three-term individual or group (three to five students) project on global strategic issues designed to allow students to employ and enhance concepts learned in classroom. In Progress grading (credit to be given only on completion of course 445C).

**445C. Management Practicum (2)** Fieldwork, to be arranged. Three-term individual or group (three to five students) project on global strategic issues designed to allow students to employ and enhance concepts learned in classroom. Letter grading.

## Management—Master of Financial Engineering Courses

### Graduate

**400. Investments (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Essentials of asset pricing and portfolio choice, standard discounted cash flow approaches, and no-arbitrage framework for valuing financial securities. Basic paradigms of asset pricing, such as capital asset pricing model (CAPM), arbitrage pricing theory (APT), and Fama-French Three-Factor model. Development and illustration of dynamic portfolio selection and optimization approaches. Letter grading.

**401. Financial Accounting (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Introduction to concepts of financial accounting and its underlying assumptions, including examination of uses and limitations of financial statements. Discussion of procedural aspects of accounting to enhance understanding of content of financial statements, with emphasis on using accounting information in evaluation of business performance and risk. Examination of use of accounting information in research studies. Letter grading.

**402. Econometrics (4)** Lecture, six hours. Limited to Master of Financial Engineering program students. Theory and in-depth application of linear regression. Topics include simple linear regression, multiple regression, prediction in multiple regression model, residual diagnostics, detection of outliers, and violations of stochastic assumptions. Letter grading.

**403. Stochastic Calculus (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Economic, statistical, and mathematical foundations of derivatives markets. Basic discrete- and continuous-time paradigms used in derivatives finance, including introduction to stochastic processes, stochastic differential equations, Ito's lemma, and key elements of stochastic calculus. Economic foundations of Black/Scholes no-arbitrage paradigm, including introduction to Girsanov's theorem and changes of measure, representation of linear functionals, equivalent martingale measures, risk-neutral valuation, fundamental partial differential equation representations of derivatives prices, market prices of risk, and Feynman/Kac representations of solutions to derivatives prices. Role of market completeness and its implications for hedging and replication of derivatives. S/U or letter grading.

**404. Financial Decision Making (4)** (Formerly numbered Management 237A.) Lecture, three hours. Limited to Master of Financial Engineering program students. Examination of broad range of issues faced by corporate financial managers, including analysis of investment and financing decisions of firms, impact on firms of agency costs and asymmetric information, mergers and acquisitions, private equity, and risk management strategies and tools. Letter grading.

**405. Computational Methods In Finance (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Quantitative and computational tools used in finance, including numerical techniques such as implementation of binomial and trinomial option pricing, lattice algorithms for computing derivative prices and hedge ratios, simulation-based algorithms for pricing American options, and numerical solution of partial differential equations that appear in financial engineering. S/U or letter grading.

**406. Derivative Markets (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Introduction to derivative markets and basic concepts, models, analyses, and technical tools of quantitative finance used in these markets. Derivatives are both exchange traded and over-the-counter securities. Derivative markets are world's largest and most liquid. Organization and role of put and call option markets, futures and forward markets, and their interrelations, with emphasis on arbitrage relations, valuation, and hedging with derivatives. Implementation of derivatives trading strategies, perspective of corporate securities as derivatives, functions of derivatives in securities markets, and recent innovations in derivative markets. S/U or letter grading.

**407. Empirical Methods in Finance (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Econometric and statistical techniques commonly used in quantitative finance. Use of estimation application software in exercises to estimate volatility, correlations, stability, regressions, and statistical inference using financial time series. S/U or letter grading.

**408. Fixed-Income Markets (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Quantitative approach to fixed-income securities and bond portfolio management, with focus on fixed-income security markets. Pricing of bonds and fixed-income derivatives, measurement and hedging of interest rate risk, dynamic models of interest rates, and management of fixed-income portfolio risk. S/U or letter grading.

**409. Financial Risk Measurement and Management (4)** Lecture, three hours. Limited to Master of Financial Engineering program students. Examination of financial risk measurement and management, including market risk, credit risk, liquidity risk, settlement risk, model risk, volatility risk, and kurtosis risk. S/U or letter grading.

**410. Applied Finance Project (4)** Fieldwork, four hours. Limited to Master of Financial Engineering program students. Applied quantitative finance project that explores one quantitative finance problem that might be met in practice and involves development or use of some tools developed in MFE Program. S/U or letter grading.

**411. Fieldwork/Research in Financial Engineering (4)** Fieldwork, to be arranged. Preparation: completion of one term of MFE program. Limited to Master of Financial Engineering program students. Supervised, nonpaid, or paid practical research experience or fieldwork in organization as intern or fellow. Execution of predetermined assignment(s) pursuant to defined program of study that may include formal coursework. May not be applied toward MFE degree requirements. S/U grading.

**412. Trading, Market Frictions, and FinTech (4)** Lecture, three hours. Examination of financial market infrastructure and mechanism of price formation and discovery. Through lens of market frictions, development of different perspectives on critical phenomena such as bubbles and crashes, short squeezes, and mutual fund runs. Case studies of FinTech unicorns demonstrate how those firms profit from resolving market frictions and how recent technology changes landscape of trading. Discussion of new implications of these technological advancements in stock market (i.e., high-frequency trading) and alternative markets (i.e., bond market and cryptocurrency market). Letter grading.

**415A. Career Development Series (2)** Lecture, three hours. Career search process requires active engagement on part of job candidate. Preliminary action is self-assessment, recognizing and valuing one's own strengths and skills to present oneself to employers as top candidate for target roles. Students identify industry and employers that are aligned with their career goals and utilize career strategies covered, including presenting oneself professionally, networking, strong application documents (résumé, cover letter, e-mails, etc.), and one's ability to communicate their value, during interview process. S/U grading.

**415B. Career Development Series (2)** Lecture, three hours. Career search process requires active engagement on part of job candidate. Preliminary action is self-assessment, recognizing and valuing one's own strengths and skills to present oneself to employers as top candidate for target roles. Students identify industry and employers that are aligned with their career goals and utilize career strategies covered, including presenting oneself professionally, networking, strong application documents (résumé, cover letter, e-mails, etc.), and one's ability to communicate their value, during interview process. S/U grading.

**431. Special Topics in Financial Engineering. (2 to 4)** Lecture, three hours. Limited to Master of Financial Engineering program students. In-depth examination of problems or issues in one area of current concern in financial engineering. May be repeated for credit. S/U or letter grading.

## Management—Master of Science in Business Analytics Courses

### Graduate

**400. Statistical Foundations for Analytics (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Review of mathematics, statistics, and probability concepts utilized in business analytics. Topics include basics of calculus, linear algebra, probability, and statistics. Letter grading.

**401. Machine Learning for Decision Making (2)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Basics of R programming language as required to succeed as data scientists. Emphasis on how to extend language by function programming and package development. Introduction to scientific document creation and reproducible research in R environment. Letter grading.

**402. SQL and Basic Data Management (2)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Introduction to and practice in Structured Query Language (SQL) syntax and constructs pertaining to data definitions, data manipulation, and data controls in relational databases using MySQL; and important concepts of data management including data analysis and modeling for relational database management systems (RDBMS). Letter grading.

**403. Optimization (2)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Introductory course in optimization. Introduction to modeling and spreadsheet modeling, linear programming, logistics and network programming, integer programming, and non-linear programming. Emphasis on model building and solving problems using Excel-based solvers. Letter grading.

**404. Business Fundamentals for Analytics (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Application of economic, financial, and marketing principles to key management decisions within organizations. Analytical tools for better understanding of external business environment in which organizations operate. S/U or letter grading.

**405. Data Management (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Tactics and strategies related to managing, manipulating, storing, and delivering data. Letter grading.

**406. Prescriptive Models and Data Analytics (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Fundamental tools in data analytics, including experimental design and analysis, regression analysis, and model design, and how to implement these approaches using statistical analysis package R. S/U or letter grading.

**407. Data Analytics Industry Seminar I (2)** Seminar, 90 minutes to three hours. Required of Master of Science in Business Analytics students. Industry guest speaker presentations. S/U or letter grading.

**408. Operations Analytics (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. How business analytics can be used to optimize internal processes and resources. Applications and cases that illustrate quantitative techniques and show how to build operational competitive edge based on business analytics. S/U or letter grading.

**409. Competitive Analytics (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Application of data analytics to examine competitive conditions in industry or market. S/U or letter grading.

**410. Customer Analytics (4)** Lecture, three hours. Limited to Master of Science in Business Analytics students. Analysis of customer data to make better marketing decisions using real-world cases, exercises, and projects to aggregate theories, frameworks, and methods. Estimation of demand-side models that describe, understand, and estimate aspects of consumers' decision-making process. Introduction to marketing-mix models and consumer-choice models. S/U or letter grading.

**411. Fieldwork/Research in Business Analytics (4)** Fieldwork, eight hours. Preparation: one term of Master of Science in Business Analytics program. Limited to Master of Science in Business Analytics students. Internship with company in proposed area of study. Regular activity reports to faculty adviser. Letter grading.

**412. Business Analytics Supervised Project (4)** Fieldwork, three hours. Limited to Master of Science in Business Analytics students. Hands-on applied analytics project that helps prepare students for career in quantitative analysis and data science by testing their ability to solve complex analytical business problems in real-world settings. Students hone their communication skills and delve deeply into area of interest beyond classroom. Students learn strategy, business consulting, entrepreneurship, business plan development, primary research collection and analysis, market assessment, financial analysis, and planning. Letter grading.

**413. Industry Seminar II (2)** Seminar, 90 minutes to three hours. Required of Master of Science in Business Analytics students. Industry guest speaker presentations. S/U or letter grading.

**431. Internet Customer Analytics (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. Focuses on strategic and tactical issues that come up after foundational stage, specifically those issues related to customer acquisition and customer retention. Introduction of analytics frameworks, data structures, and models needed to support best practices around these issues. S/U or letter grading.

**432. Health Care Analytics (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. Exploration of opportunities for improvement in design and management of health care systems and operations, using tools such as regression analysis, linear optimization, queuing theory, decision analysis, Monte Carlo simulation, and machine learning techniques. Identification of key operational challenges facing health care managers and techniques for improving efficiency in variety of health care settings, discussion of applications of data analytics and operations management in health care industry, and practical experience with developing quantitative tools and empirical analyses. S/U or letter grading.

**433. Entertainment Analytics (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. Introduction to business analytics in entertainment industry. Focus on movie studios, television, and online media. Entertainment and media executives have changed way they approach decision making as result of big data and analytics in last two years, including making greater use of specialized analytics tools; employing dedicated data insights team to inform strategic decisions; and relying on enhanced data analytics such as simulation, optimization, or predictive analytics. Examination of content as it is produced by studios and then goes from one stage to another, being shown in theater, broadcast on television, and Internet. Analytics of providing content looking both at investment needed to produce and disseminate content, and how revenues are being extracted covered at each stage. S/U or letter grading.

**434. Advanced Workshop on Machine Learning (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. Concise introduction to theory and practice of neural networks and deep learning. Discussion of some of mathematical foundations behind main algorithms. Application-centered, practical course. S/U or letter grading.

**435. Data Visualization (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. Offers solid basis for working with data and for exploring discipline. Collection, visualization, analysis, and processing of big data through lectures, case studies, and intensive class project. Tableau and Python are used. Addresses both theoretical underpinning of domain and intensive applied computing component. S/U or letter grading.

**436. Fraud Analytics (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. How to build analytics side of fraud detection model systems. Covers all algorithmic aspects of solving fraud problem, in particular how to approach and design algorithmic solution. Focus on algorithmic development. Does not address software engineering aspects of building and fielding fraud solution. Topics covered are background for building real-time fraud detection systems and forensic accounting principles. S/U or letter grading.

**437. Forecasting and Time Series (2)** Lecture, three hours (five weeks). Limited to Master of Science in Business Analytics students. Covers principal methods of time series data analysis and forecasting that are applicable in many functional areas of business, including simple and multiple regression, seasonal decomposition, Autoregressive Integrated Moving Average (ARIMA), vector autoregressive, dynamic linear, error correction models. Use of R, RStudio and its various packages for regression and time series econometrics analysis and forecasting models. S/U or letter grading.

**438. Sports Analytics (2)** Lecture, three hours. Preparation: programming experience (Python), basic statistics. Discussion of theory, development, and application of analytics in sports. Study of application of analytics in sports for purposes of in-game strategy, player performance, team management,

sports operations, and fantasy competitions, among other topics. Lectures, laboratories, guest speakers from sports industry and academia, and culminating group project. S/U or letter grading.

**440. Variable Topics in Management (2)** Lecture, 90 minutes. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with multiple topics offered each year. Letter grading.

## Management—PhD Courses

### Graduate

**200. Economics of Decision (4)** Discussion, three hours. Preparation: basic probability theory. Basics of single-person decision theory and introduction to noncooperative game theory. Examination in some detail of von Neumann/Morgenstern expected utility theory. Other topics in decision theory include subjective expected utility theory and departures from expected utility behavior. S/U or letter grading.

**201A. Probability, Statistics, and Computational Methods for Econometrics (4)** Lecture, three hours. Designed for PhD students. Introduction to probabilistic, statistical, and computational tools needed for applied researchers in business fields. Probability theory, modes of convergence, hypothesis testing, Bayesian inference, R programming, linear algebra, numerical optimization, simulation methods, numerical integration. S/U or letter grading.

**201B. Theory and Application of Regression Analysis (4)** Lecture, three hours. Recommended prerequisite: course 201A. Designed for PhD students. Introduction to general regression analysis. Linear model, maximum likelihood and asymptotic tests, endogeneity, instrumental variables, differences-in-differences, regression-discontinuity design, propensity score matching, limited dependent variable models, introduction to panel data. S/U or letter grading.

**201C. Time-Series Analysis (4)** Lecture, three hours. Recommended prerequisite: course 201B. Designed for PhD students. Introduction to time-series methods in analysis of business data. Basics of time series, optimal prediction, multiple equation time-series models, generalized method-of-moments, volatility modeling and nonnormalities, dynamic factor models. S/U or letter grading.

**202A. Accounting Workshop (1)** Lecture, two hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of accounting. Papers presented in colloquium format by leading scholars in accounting. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

**202B. Accounting Workshop (1)** Lecture, two hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of accounting. Papers presented in colloquium format by leading scholars in accounting. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

**202C. Accounting Workshop (2)** Lecture, two hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of accounting. Papers presented in colloquium format by leading scholars in accounting. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

**203A. Research Topics in Finance (2)** Seminar, three hours. Course 203A is requisite to course 203B. Designed for PhD students in their second through fourth year. Intended to help students bridge gap between coursework and research. Students select academic financial economics papers that they present, replicate, and critique. In Progress grading (credit to be given only on completion of course 203B).

**203B. Research Topics in Finance (2)** Seminar, three hours. Requisite: course 203A. Designed for PhD students in their second through fourth year. Intended to help students bridge gap between coursework and research. Students select academic financial economics papers that they present, replicate, and critique. S/U or letter grading.

**204A. Finance Workshop (1)** Lecture, 90 minutes. Designed for PhD students. Intended to develop ability to critically evaluate finance research. Papers presented in colloquium format by leading scholars in finance. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

**204B. Finance Workshop (1)** Lecture, 90 minutes. Designed for PhD students. Intended to develop ability to critically evaluate finance research. Papers presented in colloquium format by leading scholars in finance. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

**204C. Finance Workshop (2)** Lecture, 90 minutes. Designed for PhD students. Intended to develop ability to critically evaluate finance research. Papers presented in colloquium format by leading scholars in finance. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

**205A. Seminar: Decisions, Operations, and Technology Management Systems (1)** Seminar, 90 minutes to three hours. Required of all PhD students in decisions, operations, and technology management. Student, faculty, and guest speaker presentations of ongoing research. May be repeated for credit. S/U or letter grading.

**205B. Seminar: Decisions, Operations, and Technology Management Systems (1)** Seminar, 90 minutes to three hours. Required of all PhD students in decisions, operations, and technology management. Student, faculty, and guest speaker presentations of ongoing research. May be repeated for credit. S/U or letter grading.

**205C. Seminar: Decisions, Operations, and Technology Management Systems (2)** Seminar, 90 minutes to three hours. Required of all PhD students in decisions, operations, and technology management. Student, faculty, and guest speaker presentations of ongoing research. May be repeated for credit. S/U or letter grading.

**206A. Research Seminar: Management and Organizational Behavior (1)** Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of problems or issues of current concern in management and organizational behavior. Papers presented in colloquium format by leading scholars in organizational behavior. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U or letter grading.

**206B. Research Seminar: Management and Organizational Behavior (1)** Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of problems or issues of current concern in management and organizational behavior. Papers presented in colloquium format by leading scholars in organizational behavior. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U or letter grading.

**206C. Research Seminar: Management and Organizational Behavior (2)** Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of problems or issues of current concern in management and organizational behavior. Papers presented in colloquium format by leading scholars in organizational behavior. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U or letter grading.

**207A. Workshop: Marketing (1)** Lecture, three hours. Designed for PhD students. Required of all students during first two years of their PhD work. Series consists of number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and PhD students. Active participation and intellectual interchange that helps students gain richer perspective on field of marketing. In Progress grading (credit to be given only on completion of course 207C).

**207B. Workshop: Marketing (1)** Lecture, three hours. Designed for PhD students. Required of all students during first two years of their PhD work. Series consists of number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and PhD students. Active participation and intellectual interchange that helps students gain richer perspective on field of marketing. In Progress grading (credit to be given only on completion of course 207C).

**207C. Workshop: Marketing (2)** Lecture, three hours. Designed for PhD students. Required of all students during first two years of their PhD work. Series consists of number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and PhD students. Active participation and intellectual interchange that helps students gain richer perspective on field of marketing. S/U or letter grading.

**208A. Global Economics and Management Workshop (1)** Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of economics. Papers presented in colloquium format by leading scholars in economics. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

**208B. Global Economics and Management Workshop (1)** Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of economics. Papers presented in colloquium format by leading scholars in economics. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

**208C. Global Economics and Management Workshop (2)** Seminar, two hours. Designed for PhD students. Development of ability to critically evaluate research in fields relevant to study of economics. Papers presented in colloquium format by leading scholars in economics. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

**209A. Management Strategy and Policy Workshop (1)** Lecture, three hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of management strategy and policy. Papers presented in colloquium format by leading scholars in management strategy and policy. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

**209B. Management Strategy and Policy Workshop (1)** Lecture, three hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of management strategy and policy. Papers presented in colloquium format by leading scholars in management strategy and policy. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

**209C. Management Strategy and Policy Workshop (2)** Lecture, three hours. Designed for PhD students. Intended to develop ability to critically evaluate research in fields relevant to study of management strategy and policy. Papers presented in colloquium format by leading scholars in management strategy and policy. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

**231. Network Flows and Integer Programming (4)** Lecture, three hours. Preparation: linear programming. Survey course to (1) lay foundations for more advanced study of graphs, network flow models, and integer programming models and their applications, (2) establish connections between these technical foundations and real problems drawn from many areas of management, and (3) build professional skills needed to apply these tools. S/U or letter grading.

**232. Behavior under Uncertainty (4)** Lecture, three hours. Designed for PhD students. Exploration of foundational research and current controversies in behavioral literature on judgment and decision making under uncertainty. S/U or letter grading.

**233. Introduction to Multivariate Analysis (4)** Lecture, three hours. Preparation: working knowledge of differential and integral calculus of several variables, basic probability theory, and univariate mathematical statistics. Introduction to use of multivariate models in management research to organize and represent information; interpretation of coefficients from multivariate exploratory models (e.g., principal axes and factor analysis models); survey of multivariate statistical procedures (e.g., multiple discriminate analysis, multivariate analysis of variance, canonical correlation, and confirmatory factor models). S/U or letter grading.

**234. Special Topics in Accounting (4)** Lecture, three hours. Requisite: doctoral standing or consent of instructor. Examination in depth of problems or issues of current concern in accounting, such as application of information economics and principal-agent model to accounting. S/U or letter grading.

**235. Empirical Research in Accounting (4)** Lecture, three hours. Requisites: training in econometrics and doctoral standing or consent of instructor. Introduction to empirical accounting literature, focusing on role that accounting information plays in formation of capital market prices. S/U or letter grading.

**236. Theoretical Models in Accounting (4)** Lecture, three hours. Major theoretical paradigms characterizing analytic modeling in accounting. Emphasis on financial accounting applications. Discussion focuses on economic intuition as reflected by key tensions and related insights. Possible examination of mathematical expressions that encapsulate what can be learned from models. Letter grading.

**237. Introduction to Financial Economics (4)** Lecture, three hours. Provides foundational material for analytical studies of financial markets. Emphasis is on continuous time mathematics as applied to pricing of financial assets. S/U or letter grading.



**238. Macroeconomics and Finance (4)** Lecture, three hours. Introduction to research frontier of dynamic and quantitative modeling and estimation in macro finance. Exploration of asset liquidity, slow moving capital and market segmentation, and intermediary-based asset pricing. S/U or letter grading.

**239. Empirical Asset Pricing (4)** Lecture, three hours. Focus on measuring and understanding risk premiums in financial markets. Study of evidence pertaining to pricing kernel and applied theoretical developments that are motivated by evidence. S/U or letter grading.

**240. Theory of Corporate Finance (4)** Lecture, three hours. First course in theory of corporate finance. Topics covered include capital structure under asymmetric information and agency problems, security design, dynamic investment policies, and structural estimation of equilibrium models in corporate finance. S/U or letter grading.

**241A. Models for Operations Planning, Scheduling, and Control (4)** Lecture, three hours. Designed for PhD students with some knowledge of mathematical programming and stochastic processes. Foundations of operations planning, scheduling, and control, with emphasis on formal models and their applications. Aggregate planning, work force scheduling, inventory management, and detailed operations scheduling and control. S/U or letter grading.

**241B. Scheduling Models for Intermittent Systems (4)** Lecture, three hours. Prerequisite: course 241A. Scheduling models and results for single machine, flow shop, job shop, and resource-constrained project networks. Approaches include classical models, recent heuristic approaches, current research in coordinated interaction of computer models, and man/machine interaction. S/U or letter grading.

**242. Special Topics in Decisions, Operations, and Technology Management (4)** Lecture, three hours. Designed for MBA and PhD students. Studies of advanced subjects of current interest in decisions, operations, and technology management. Emphasis on recent developments and application of specialized knowledge. Topics vary each term and have included strategy for information intensive industries, empirical research in operations management, analytical methods of operation research, introduction to management in information economy, and models for medical management. May be repeated for credit with topic change. S/U or letter grading.

**243. Foundations of Organizational Behavior (4)** (Formerly numbered Management M259A.) (Same as Psychology M222E.) Lecture, three hours. Designed for graduate students. Doctoral-level survey of classic and emerging theories and research in field of organizational behavior, with focus on micro-level topics related to individual and interpersonal processes within organizations. Exploration of how individual behaviors, cognitions, and perceptions are affected by organizational content, structure, and culture. S/U or letter grading.

**244. Advanced Studies in Organizational Behavior (4)** (Formerly numbered Management 259B.) Lecture, three hours. Designed for graduate students. Doctoral-level survey of research literature assessing how organizations utilize human resources to enhance individual, group, and organizational effectiveness. Current theory and research in psychology, anthropology, organizational behavior, and economics, including topics such as careers, participation, negotiations, and technology/work systems. S/U or letter grading.

**245. Research in Organizations (4)** (Formerly numbered Management 259C.) Seminar, three hours. Designed for graduate students. Doctoral-level survey of major topics in organizational behavior, with focus on macro-level organizational topics related to study of organizational systems and organizational environments. Topics may include demography, organizational change, organizational structure, and networks. Letter grading.

**246. Theory in Marketing (4)** Lecture, three hours. Serves as mechanism to introduce students to development of marketing thought. Issues pertaining to general topic of theory development and testing. Prepares students for conducting theoretically grounded research in marketing. S/U or letter grading.

**247. Research in Marketing Management (4)** Lecture, three hours. Designed for PhD students. Study of research issues associated with marketing management decisions. Recent research in areas of strategic marketing, market segmentation, new product development and introduction, pricing strategies, channel policy, promotion decisions, and sales force management examined critically. Review of both quantitative and behavioral approaches to studying these issues. S/U or letter grading.

**248. Quantitative Research in Marketing (4)** Lecture, three hours. Designed for PhD students in management and related fields. Students are assumed to have good background in marketing principles and to be familiar with probability, statistics, mathematical programming, and econometrics. Review of a range of quantitative models as applied in marketing research. S/U or letter grading.

**249. Behavioral Research in Marketing (4)** Seminar, three hours. Designed for PhD students who are conducting research in consumer behavior or related areas. Empirical research in consumer behavior surveyed and critically evaluated from theoretical as well as practical perspectives. S/U or letter grading.

**250. Special Research Topics in Marketing (4)** Lecture, three hours. Designed for PhD students. Advanced selected topics in marketing, with emphasis on thorough examination of one or two topics in current research and theory. May be repeated for credit. S/U or letter grading.

**251. Research and Development Policy (4)** (Same as Public Policy M280A.) Lecture, three hours. Examination of research and development as process and as element of goal-oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of and forecasting technological futures. S/U or letter grading.

**252. Special Topics in Management Theory (4)** Lecture, three hours. Designed for PhD students. Examination in depth of problems or issues of current concern in management theory. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced PhD candidates, academic staff, or distinguished visiting faculty. May be repeated for credit. S/U or letter grading.

**253. Field Research in Organizations and Management (4)** Seminar, three hours. Designed for PhD students. Immersion in discipline and practice of using field data to conduct management research. Students become more informed users and reviewers of variety of methodological approaches. Students gain familiarity with approaching companies to partner on research, gathering and preparing to analyze field data, and what to expect in review process for paper that uses field data. Content of research discussed could extend to other fields (e.g., strategy, psychology, judgment and decision making). S/U or letter grading.

**254. Empirical Corporate Finance (4)** Lecture, three hours. Familiarizes students with major areas of ongoing research in empirical corporate finance. Focus on state of empirical knowledge about corporate and household finance, and methodological issues arising in empirical research in corporate finance. S/U or letter grading.

**255. Information and Trading in Financial Markets (4)** Lecture, three hours. Consideration of research on how information is processed in financial markets. Emphasis on classical models, as well as psychological approaches to stock price movements. Review of behavioral interpretations of trading behavior and price patterns in financial markets. S/U or letter grading.

**260. Behavioral Economics: Individuals, Organizations, and Markets (4)** Lecture, three hours. Study of how predictions of behavior and optimal economic policy differ when traditional economic assumptions (often selfish, unbounded rationality) are replaced with more psychologically realistic assumptions drawn from lab and world. Special attention to way in which these modified assumptions can be incorporated into broadly applicable and parsimonious models of human behavior, and what they imply for markets, management, and public policy. Letter grading.

**261. Judgment and Decision Making (4)** Lecture, three hours. Introduction to behavioral research on judgment and decision making, with special attention to conditions of uncertainty. Includes research by Daniel Kahneman and Amos Tversky for which Kahneman was awarded 2002 Nobel Memorial Prize in Economic Sciences, and some of work for which Richard Thaler was cited in his Nobel Memorial Prize in 2017. Examination of recent descriptive models of judgment and decision making using rational choice theory as point of departure. Examination of classic articles and current controversies. Letter grading.

**262. Applied Analysis for Behavioral Research (4)** Lecture, three hours. Provides foundation for statistical analyses that are conducted as part of career as behavioral researcher. Heavy focus on understanding and using statistical analyses, not deriving proofs. Letter grading.

**263. Choice Architecture and Nudging in Field (4)** Lecture, three hours. Application of behavioral science to field experimentation. Designed to bridge crucial educational gap for PhD students. Includes identifying research partners, achieving scale, dealing with logistical challenges, and collaborating with outside institutions who may have different goals. Letter grading.

**270. Political Economy of Economic Development (4)** Lecture, three hours. Use of historical and comparative approach to understanding evolution and development of societies. Examination of research that asks whether differences in economic development today have historical roots. Study of different mechanisms and channels through which history matters. Particular attention to role of domestic institutions and culture in explaining historical persistence. Letter grading.

# Materials Science and Engineering

## Materials Science and Engineering Courses

### Lower Division

**10. Freshman Seminar: New Materials (1)** Seminar, one hour; outside study, two hours. Preparation: high school chemistry and physics. Not open to students with credit for course 104. Introduction to basic concepts of materials science and new materials vital to advanced technology. Microstructural analysis and various material properties discussed in conjunction with such applications as biomedical sensors, pollution control, and microelectronics. Letter grading.

**13L. Cultural (Materials) Science Investigations in Art and Archaeology (5)** Laboratory, four hours; discussion, two hours; site visits, four hours; outside study, five hours. Focus on portable X-ray fluorescence (XRF) and ultraviolet, visible, near infrared (UV/Vis/NIR) spectroscopy and forensic imaging, with emphasis on fundamentals of techniques, data collection and interpretation, and effects of weathering and post depositional and taphonomic processes to help answer questions related to ancient materials manufacturing technologies, materials variability, and human interaction with environment. Experimental techniques and analysis of materials through: X-ray fluorescence spectroscopy (XRF); fiber optic reflectance spectroscopy (FORS); and forensic multispectral imaging. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**33W. Materials Structure and Technology in Archaeology and Architecture (5)** (Formerly numbered 33.) Seminar, three hours; laboratory, two hours; discussion, one hour; outside study, nine hours. Requisite: English Composition 3. Exploration of three classes of materials and composites, and relationships that exist between structural elements of materials and their properties: vitreous materials, building material binders, and pigments and colorants. Through study of ancient materials and technology in archaeology and architecture, exploration of relationships among processing, structure, properties, and performance for: vitreous materials—ceramics, frits, and glass; building material binders—air lime-based mortars, natural and artificial hydraulic lime/cements and concretes; and pigments and colorants (natural and synthetic organic, inorganic, and organic/inorganic hybrids). Through reverse engineering processing, exploration of ancient engineering materials (their micro/nano structure and physical, chemical, and mechanical properties), and their durability and sustainability as time-proven examples of technology innovation and/or invention. Letter grading.

**90L. Physical Measurement in Materials Engineering (2)** Laboratory, four hours; outside study, two hours. Various physical measurement methods used in materials science and engineering. Mechanical, thermal, electrical, magnetic, and optical techniques. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**104. Science of Engineering Materials (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20A, 20B, 20L, Physics 1A. Corequisite: Physics 1B. General introduction to different types of materials used in engineering designs: metals, ceramics, plastics, and composites, relationship between structure (crystals and microstructure) and properties of technological materials. Illustration of their fundamental differences and their applications in engineering. Letter grading.

**105. Principles of Nanoscience and Nanotechnology (4)** (Formerly numbered M105.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, Physics 1C. Introduction to underlying science encompassing structure, properties, and fabrication of technologically important nanoscale systems. New phenomena that emerge in very small systems (typically with feature sizes below few hundred nanometers) explained using basic concepts from physics and chemistry. Chemical, optical, and electronic properties, electron transport, structural stability, self-assembly, templated assembly and applications of various nanostructures such as quantum dots, nanoparticles, quantum wires, quantum wells and multilayers, carbon nanotubes. Letter grading.

logically important nanoscale systems. New phenomena that emerge in very small systems (typically with feature sizes below few hundred nanometers) explained using basic concepts from physics and chemistry. Chemical, optical, and electronic properties, electron transport, structural stability, self-assembly, templated assembly and applications of various nanostructures such as quantum dots, nanoparticles, quantum wires, quantum wells and multilayers, carbon nanotubes. Letter grading.

**110. Introduction to Materials Characterization A (Crystal Structure, Nanostructures, and X-Ray Scattering) (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 104. Modern methods of materials characterization; fundamentals of crystallography, properties of X rays, X-ray scattering; powder method, Laue method; determination of crystal structures; phase diagram determination; high-resolution X-ray diffraction methods; X-ray spectroscopy; design of materials characterization procedures. Letter grading.

**110L. Introduction to Materials Characterization A Laboratory (2)** Laboratory, four hours; outside study, two hours. Enforced requisite: course 104. Experimental techniques and analysis of materials through X-ray scattering techniques; powder method, crystal structure determination, high-resolution X-ray diffraction methods, and special projects. Letter grading.

**C111. Introduction to Materials Characterization B (Electron Microscopy) (4)** (Formerly numbered 111.) Lecture, four hours; outside study, eight hours. Characterization of microstructure and microchemistry of materials; transmission electron microscopy; reciprocal lattice, electron diffraction, stereographic projection, direct observation of defects in crystals, replicas; scanning electron microscopy: emissive and reflective modes; chemical analysis; electron optics of both instruments. Concurrently scheduled with course C211. Letter grading.

**111L. Introduction to Materials Characterization B Laboratory (2)** Laboratory, four hours; outside study, two hours. Enforced requisite: course 111. Experimental techniques and analysis of materials through electron microscopy. Determination of morphology, microstructure, and crystallinity of samples. Letter grading.

**C112. Cultural Materials Science II: Characterization Methods in Conservation of Materials (4)** Lecture, four hours. Preparation: general chemistry, inorganic and organic chemistry, materials science. Principles and methods of materials characterization in conservation: optical and electron microscopy, X-ray and electron spectroscopy, X-ray diffraction, infrared spectroscopy, reflectance spectroscopy and multispectral imaging spectroscopy, chromatography, design of archaeological and ethnographic materials characterization procedures. Concurrently scheduled with course C212. Letter grading.

**120. Physics of Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 104, 110 (or Chemistry 113A). Introduction to electrical, optical, and magnetic properties of solids. Free electron model, introduction to band theory and Schrödinger wave equation. Crystal bonding and lattice vibrations. Mechanisms and characterization of electrical conductivity, optical absorption, magnetic behavior, dielectrical properties, and p-n junctions. Letter grading.

**121. Materials Science of Semiconductors (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 120. Structure and properties of elemental and compound semiconductors. Electrical and optical properties, defect chemistry, and doping. Electronic materials analysis and characterization, including electrical, optical, and ion-beam techniques. Heterostructures, band-gap engineering, development of new materials for optoelectronic applications. Letter grading.

**121L. Materials Science of Semiconductors Laboratory (2)** Lecture, 30 minutes; discussion, 30 minutes; laboratory, two hours; outside study, three hours. Enforced corequisite: course 121. Experiments conducted on materials characterization, including measurements of contact resistance, dielectric constant, and thin film biaxial modulus and CTE. Letter grading.

**122. Principles of Electronic Materials Processing (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 104. Description of basic semiconductor materials for device processing; preparation and characterization of silicon, III-V compounds, and films. Discussion of principles of CVD, MOCVD, LPE, and MBE; metals and dielectrics. Letter grading.

**130. Phase Relations in Solids (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 104. Summary of thermodynamic laws, equilibrium criteria, solution thermodynamics, mass-action law, binary and ternary phase diagrams, glass transitions. Letter grading.

**131. Diffusion and Diffusion-Controlled Reactions (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 130 or Chemistry 110A. Diffusion in metals and ionic solids, nucleation and growth theory; precipitation from solid solution, eutectoid decomposition, design of

heat treatment processes of alloys, growth of intermediate phases, gas-solid reactions, design of oxidation-resistant alloys, recrystallization, and grain growth. Letter grading.

**131L. Diffusion and Diffusion-Controlled Reactions Laboratory (2)** Laboratory, two hours; outside study, four hours. Enforced corequisite: course 131. Design of heat-treating cycles and performing experiments to study interdiffusion, growth of intermediate phases, recrystallization, and grain growth in metals. Analysis of data. Comparison of results with theory. Letter grading.

**132. Structure and Properties of Metallic Alloys (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 131. Physical metallurgy of steels, lightweight alloys (Al and Ti), and superalloys. Strengthening mechanisms, microstructural control methods for strength and toughness improvement. Grain boundary segregation. Letter grading.

**140A. Materials Selection and Engineering Design A (3)** Lecture, two hours; laboratory, two hours; outside study, five hours. Enforced prerequisites: two courses from 132, 150, 160. Explicit guidance among myriad materials available for design in engineering. Properties and applications of steels, nonferrous alloys, polymeric, ceramic, and composite materials, coatings. Materials selection, treatment, and serviceability emphasized as part of successful design. Design projects. Letter grading.

**140B. Materials Selection and Engineering Design B (3)** Lecture, two hours; laboratory, two hours; outside study, five hours. Enforced prerequisite: course 140A. Explicit guidance among myriad materials available for design in engineering. Properties and applications of steels, nonferrous alloys, polymeric, ceramic, and composite materials, coatings. Materials selection, treatment, and serviceability emphasized as part of successful design. Design projects. Letter grading.

**141L. Computer Methods and Instrumentation in Materials Science (2)** Laboratory, four hours. Preparation: knowledge of BASIC or C or assembly language. Limited to junior/senior Materials Science and Engineering majors. Interface and control techniques, real-time data acquisition and processing, computer-aided testing. Letter grading.

**143A. Mechanical Behavior of Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisites: course 104, Mechanical and Aerospace Engineering 101. Plastic flow of metals under simple and combined loading, strain rate and temperature effects, dislocations, fracture, microstructural effects, mechanical and thermal treatment of steel for engineering applications. Letter grading.

**143L. Mechanical Behavior Laboratory (2)** Laboratory, four hours. Requisites: courses 90L, 143A (may be taken concurrently). Methods of characterizing mechanical behavior of various materials; elastic and plastic deformation, fracture toughness, fatigue, and creep. Letter grading.

**150. Introduction to Polymers (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Polymerization mechanisms, molecular weight and distribution, chemical structure and bonding, structure crystallinity, and morphology and their effects on physical properties. Glassy polymers, springy polymers, elastomers, adhesives. Fiber forming polymers, polymer processing technology, plastication. Letter grading.

**151. Structure and Properties of Composite Materials (4)** Lecture, four hours; outside study, eight hours. Preparation: at least two courses from 132, 143A, 150, 160. Requisite: course 104. Relationship between structure and mechanical properties of composite materials with fiber and particulate reinforcement. Properties of fiber, matrix, and interfaces. Selection of macrostructures and material systems. Letter grading.

**160. Introduction to Ceramics and Glasses (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced prerequisites: courses 104, 130. Introduction to ceramics and glasses being used as important materials of engineering, processing techniques, and unique properties. Examples of design and control of properties for certain specific applications in engineering. Letter grading.

**161. Processing of Ceramics and Glasses (4)** Lecture, four hours; discussion, one hour. Requisite: course 160. Study of processes used in fabrication of ceramics and glasses for structural applications, optics, and electronics. Processing operations, including modern techniques of powder synthesis, greenware forming, sintering, glass melting. Microstructure properties relations in ceramics. Fracture analysis and design with ceramics. Letter grading.

**161L. Laboratory in Ceramics (2)** Laboratory, four hours. Requisite: course 160. Recommended corequisite: course 161. Processing of common ceramics and glasses. Attainment of specific properties through process control for engineering applications. Quantitative characterization and selection of raw materials. Slip casting and extrusion of clay bodies. Sintering of powders. Glass melting and fabrication. Determination of chemical and physical properties. Letter grading.

**162. Electronic Ceramics (4)** Lecture, four hours; outside study, eight hours. Requisites: course 104, Physics 1C. Utilization of ceramics in microelectronics; thick film and thin film resistors, capacitors, and substrates; design and processing of electronic ceramics and packaging; magnetic ceramics; ferroelectric ceramics and electro-optic devices; optical wave guide applications and designs. Letter grading.

**CM163. Electrochemical Processes (4)** (Same as Chemical Engineering CM114.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 130 (or Mechanical and Aerospace Engineering 105A), Chemical Engineering 102B. Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes. Primary emphasis on fundamental approach to analyze electrochemical processes. Specific topics include electrochemical reactions on metal and semiconductor surfaces, electrodeposition, electroless deposition, electrosynthesis, fuel cells, aqueous and non-aqueous batteries, solid-state electrochemistry. May be concurrently scheduled with course CM263. Letter grading.

**170. Engaging Elements of Communication: Oral Communication (2)** Lecture, one hour; discussion, one hour; outside study, four hours. Comprehensive oral presentation and communication skills provided by building on strengths of individual personal styles in creation of positive interpersonal relations. Skill set prepares students for different types of academic and professional presentations for wide range of audiences. Learning environment is highly supportive and interactive as it helps students creatively develop and greatly expand effectiveness of their communication and presentation skills. Letter grading.

**171. Engaging Elements of Communication: Writing for Technical Community (2)** Lecture, one hour; discussion, one hour; outside study, four hours. Comprehensive technical writing skills on subjects specific to field of materials science and engineering. Students write review term paper in selected subject field of materials science and engineering from given set of journal publications. Instruction leads students through several crucial steps, including brainstorming, choosing title, coming up with outline, concise writing of abstract, conclusion, and final polishing. Other subjects include writing style, word choices, and grammar. Letter grading.

**CM180. Introduction to Biomaterials (4)** (Same as Bioengineering CM178.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course 104, or Chemistry 20A, 20B, and 20L. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM280. Letter grading.

**188. Special Courses in Materials Science and Engineering (4)** Seminar, four hours; outside study, eight hours. Special topics in materials science and engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

**194. Research Group Seminars: Materials Science and Engineering (4)** Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

**199. Directed Research in Materials Science and Engineering. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Occasional field trips may be arranged. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**200. Principles of Materials Science I (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 120. Lattice dynamics and thermal properties of solids, classical and quantized free electron theory, electrons in a periodic potential, transport in semiconductors, dielectric and magnetic properties of solids. Letter grading.

**201. Principles of Materials Science II (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131. Kinetics of diffusional transformations in solids. Precipitation in solids. Nucleation theory. Theory of precipitate growth. Ostwald ripening. Spinodal decomposition. Cellular reactions. Letter grading.

**202. Thermodynamics of Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Principles of thermodynamics and statistical mechanics and their application to physical and chemical phenomena in materials. Finite-temperature properties of single-component and multicomponent systems, equations of state, thermodynamic potentials and their de-

rivatives, phase diagrams, and other equilibrium properties. First-order and second-order phase transitions in liquids and solids. Introduction to classical and modern theories of critical phenomena. Thermodynamic description of irreversible processes and entropy generation. Letter grading.

**210. Diffraction Methods in Science of Materials (4)** Lecture, four hours; recitation, one hour; outside study, seven hours. Requisite: course 110. Theory of diffraction of waves (X rays, electrons, and neutrons) in crystalline and non-crystalline materials. Long- and short-range order in crystals, structural effects of plastic deformation, solid-state transformations, arrangements of atoms in liquids and amorphous solids. Letter grading.

**C211. Introduction to Materials Characterization B (Electron Microscopy) (4)** (Formerly numbered 211.) Lecture, four hours; outside study, eight hours. Characterization of microstructure and microchemistry of materials; transmission electron microscopy; reciprocal lattice, electron diffraction, stereographic projection, direct observation of defects in crystals, replicas; scanning electron microscopy: emissive and reflective modes; chemical analysis; electron optics of both instruments. Concurrently scheduled with course C111. Letter grading.

**C212. Cultural Materials Science II: Characterization Methods in Conservation of Materials (4)** (Formerly numbered CM212.) Lecture, four hours. Preparation: general chemistry, inorganic and organic chemistry, materials science. Principles and methods of materials characterization in conservation: optical and electron microscopy, X-ray and electron spectroscopy, X-ray diffraction, infrared spectroscopy, reflectance spectroscopy and multispectral imaging spectroscopy, chromatography, design of archaeological and ethnographic materials characterization procedures. Concurrently scheduled with course C112. Letter grading.

**213. Cultural Materials Science I: Analytical Imaging and Documentation in Conservation of Materials (4)** (Same as Conservation M215.) Lecture, two hours; laboratory, two hours. Basic and advanced techniques on digital photography, computer-aided recording tools, and scientific imaging to determine and document condition (defects) and technological features of archaeological and ethnographic materials. Development of basic theoretical knowledge on imaging and photonics technology and practical skills on conservation photo-documentation, analytical (forensic) photography, and advanced new imaging technologies. Letter grading.

**213L. Cultural Materials Science Laboratory: Technical Study (4)** (Formerly numbered M213L.) Laboratory, four hours. Requisites: courses M213 (or 216) and 214 or one course from Conservation 260 through 263. Corequisite: course C212. Research-based laboratory through object-based problem-solving approach in conservation materials science. Experimental techniques, characterization, and analysis of archaeological and ethnographic materials (using materials science principles and reverse engineering processes) to determine technological features, defects, and products of alteration. Hands-on experience with noninvasive imaging and spectroscopic techniques, sampling and sample preparation methods, analysis of microsamples. Letter grading.

**214. Structure, Properties, and Deterioration of Materials: Rock Art, Wall Paintings, Mosaics (2)** (Formerly numbered M214.) Lecture, three hours. Recommended preparation: basic knowledge of general chemistry and materials science. Introduction to materials and techniques of rock art, wall paintings (including painted surfaces on cement and composite decorative architectural surfaces), and mosaics. Archaeological and ethnographic context, techniques, and materials. Pigments, colorants, and binding media. Chemical, optical, and structural properties. Relationship between composition (chemistry), structure (crystals, molecular arrangement, and microstructure), and properties explained using basic concepts from physics and chemistry. Intrinsic attributes and resistance to weathering. Causes, sources, and mechanisms of deterioration (physical, chemical, and biochemical). Letter grading.

**216. Science of Conservation Materials and Methods I (4)** (Formerly numbered M216.) Lecture, two hours; laboratory, two hours. Recommended requisite: laboratory safety fundamental concepts course by Office of Environment, Health, and Safety. Introduction to physical, chemical, and mechanical properties of conservation materials (employed for preservation of archaeological and cultural materials) and their aging characteristics. Science and application methods of traditional organic and inorganic systems and introduction of novel technology based on biomineralization processes and nanostructured materials. Letter grading.

**221. Science of Electronic Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 120. Study of major physical and chemical principles affecting properties and performance of semiconductor materials. Topics include bonding, carrier statistics, band-gap engineering, optical and transport properties, novel materials systems, and characterization. Letter grading.

**222. Growth and Processing of Electronic Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 120, 130, 131. Thermodynamics and kinetics that affect semiconductor growth and device processing. Particular emphasis on fundamentals of growth (bulk and epitaxial), heteroepitaxy, implantation, oxidation. Letter grading.

**223. Materials Science of Thin Films (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 120, 131. Fabrication, structure, and property correlations of thin films used in microelectronics for data and information processing. Topics include film deposition, interfacial properties, stress and strain, electromigration, phase changes and kinetics, reliability. Letter grading.

**224. Deposition Technologies and Their Applications (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Examination of physics behind majority of modern thin film deposition technologies based on vapor phase transport. Basic vacuum technology and gas kinetics. Deposition methods used in high-technology applications. Theory and experimental details of physical vapor deposition (PVD), chemical vapor deposition (CVD), plasma-enhanced chemical vapor deposition processes. Letter grading.

**225. Materials Science of Surfaces (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 120, Chemistry 113A. Introduction to atomic and electronic structure of surfaces. Survey of methods for determining composition and structure of surfaces and near-surface layers of solid-state materials. Emphasis on scanning probe microscopy, Auger electron spectroscopy, X-ray photoelectron spectroscopy, ultraviolet photoelectron spectroscopy, secondary ion mass spectrometry, ion scattering spectroscopy, and Rutherford backscattering spectrometry. Applications in microelectronics, optoelectronics, metallurgy, polymers, biological and biocompatible materials, and catalysis. Letter grading.

**226. Si-CMOS Technology: Selected Topics in Materials Science (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Recommended preparation: Electrical Engineering 221B. Requisites: courses 130, 131, 200, 221, 222. Selected topics in materials science from modern Si-CMOS technology, including technological challenges in high k/metal gate stacks, strained Si FETs, SOI and three-dimensional FETs, source/drain engineering including transient-enhanced diffusion, nonvolatile memory, and metallization for ohmic contacts. Letter grading.

**243A. Fracture of Structural Materials (4)** Lecture, four hours; laboratory, two hours; outside study, four hours. Requisite: course 143A. Engineering and scientific aspects of crack nucleation, slow crack growth, and unstable fracture. Fracture mechanics, dislocation models, fatigue, fracture in reactive environments, alloy development, fracture-safe design. Letter grading.

**243C. Dislocations and Strengthening Mechanisms in Solids (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 143A. Elastic and plastic behavior of crystals, geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening. Letter grading.

**246A. Mechanical Properties of Nonmetallic Crystalline Solids (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 160. Materials and environmental factors affecting mechanical properties of nonmetallic crystalline solids, including atomic bonding and structure, atomic-scale defects, microstructural features, residual stresses, temperature, stress state, strain rate, size and surface conditions. Letter grading.

**246B. Structure and Properties of Glass (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 160. Structure of amorphous solids and glasses. Conditions of glass formation and theories of glass structure. Mechanical, electrical, and optical properties of glass and relationship to structure. Letter grading.

**246D. Electronic and Optical Properties of Ceramics (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 160. Principles governing electronic properties of ceramic single crystals and glasses and effects of processing and microstructure on these properties. Electronic conduction, ferroelectricity, and photochromism. Magnetic ceramics. Infrared, visible, and ultraviolet transmission. Unique application of ceramics. Letter grading.

**247. Nanoscale Materials: Challenges and Opportunities (4)** Lecture, four hours; discussion, eight hours. Limited to graduate students. Literature studies of up-to-date subjects in novel materials and their potential applications, including nanoscale materials and biomaterials. Letter grading.

**248. Materials and Physics of Solar Cells (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Comprehensive introduction to materials and physics of photovoltaic cell, covering basic physics of semiconductors in photovoltaic devices, physical models of cell operation, characteristics and design of common types of solar cells, and approaches to increasing

solar cell efficiency. Recent progress in solar cells, such as organic solar cell, thin-film solar cells, and multiple junction solar cells provided to increase student knowledge. Tour of research laboratory included. Letter grading.

**250B. Advanced Composite Materials (4)** Lecture, four hours; outside study, eight hours. Preparation: BS in Materials Science and Engineering. Requisite: course 151. Fabrication methods, structure and properties of advanced composite materials. Fibers; resin-, metal-, and ceramic-matrix composites. Physical, mechanical, and nondestructive characterization techniques. Letter grading.

**251. Chemistry of Soft Materials (4)** Lecture, four hours. Introduction to organic soft materials, including essential basic organic chemistry and polymer chemistry. Topics include three main categories of soft materials: organic molecules, synthetic polymers, and biomolecules and biomaterials. Extensive description and discussion of structure-property relationship, spectroscopic and experimental techniques, and preparation methods for various soft materials. Letter grading.

**252. Organic Polymer Electronic Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Preparation: knowledge of introductory organic chemistry and polymer science. Introduction to organic electronic materials with emphasis on materials chemistry and processing. Topics include conjugated polymers; heavily doped, highly conducting polymers; applications as processable metals and in various electrical, optical, and electrochemical devices. Synthesis of semiconductor polymers for organic light-emitting diodes, solar cells, thin-film transistors. Introduction to emerging field of organic electronics. Letter grading.

**253. Bioinspired Materials (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Broad overview of most recent advances in bioinspired materials and biomaterials, covering natural materials, biomimicry, and bioinspired artificial materials, with emphasis on synthesis, processing, hierarchical design, and assembly from nano- to macro-scale, properties and characterizations, and real-life applications. Letter grading.

**261. Risk Analysis for Engineers and Scientists (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Topics include definition and fundamental concepts of risk, sociotechnical context of risk assessment and risk management, perception and reality of risk, risk-informed decision-making, domains of application (safety, health, security, economy, and environment), principal methods of risk assessment, including overview of probability and statistics, how to identify risk scenarios, techniques modeling failures of complex systems (e.g., fault tree and event tree analysis), data collection and analysis, model integration and computational algorithms for risk calculation and identification of risk drivers, simulation approach to risk modeling, uncertainty analysis, examples of risk assessment of engineered systems (e.g., space and aviation, nuclear power, petrochemical plants), other applications (risk of medical procedures, financial risk, natural hazards risk). Letter grading.

**262. Probabilistic Modeling and Simulation of Complex Systems (4)** Seminar, four hours; discussion, one hour; outside study, seven hours. Introduction to simulation methodologies and model development approaches that provide insight into systemic risks or performance characteristics involved in random processes and/or complex systems. These simulation methodologies are designed to inform decision-making at all stages of the system's lifecycle. Key elements include underlying mathematical principles, numerical analysis techniques, and application of results to solve problems in range of science and engineering fields. Students gain experience in creating properly scoped simulation models, verifying models, and presenting results to communicate information. Students are equipped with working knowledge of fundamental simulation techniques and ability to create meaningful models of their own. Letter grading.

**CM263. Electrochemical Processes (4)** (Same as Chemical Engineering CM214.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 130 (or Mechanical and Aerospace Engineering 105A), Chemical Engineering 102B. Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes. Primary emphasis on fundamental approach to analyze electrochemical processes. Specific topics include electrochemical reactions on metal and semiconductor surfaces, electrodeposition, electroless deposition, electrosynthesis, fuel cells, aqueous and non-aqueous batteries, solid-state electrochemistry. May be concurrently scheduled with course CM163. Letter grading.

**270. Computer Simulations of Materials (4)** Lecture, four hours; outside study, eight hours. Introduction to modern methods of computational modeling in materials science. Topics include basic statistical mechanics, classical molecular dynamics, and Monte Carlo methods, with emphasis on understanding basic physical ideas and learning to design, run, and analyze computer simu-

lations of materials. Use of examples from current literature to show how these methods can be used to study interesting phenomena in materials science. Hands-on computer experiments. Letter grading.

**271. Electronic Structure of Materials (4)** Lecture, four hours; outside study, eight hours. Preparation: basic knowledge of quantum mechanics. Recommended requisite: course 200. Introduction to modern first-principles electronic structure calculations for various types of modern materials. Properties of electrons and interatomic bonding in molecules, crystals, and liquids, with emphasis on practical methods for solving Schrödinger equation and using it to calculate physical properties such as elastic constants, equilibrium structures, binding energies, vibrational frequencies, electronic band gaps and band structures, properties of defects, surfaces, interfaces, and magnetism. Extensive hands-on experience with modern density-functional theory code. Letter grading.

**272. Theory of Nanomaterials (4)** Lecture, four hours; outside study, eight hours. Strongly recommended requisite: course 200. Introduction to properties and applications of nanoscale materials, with emphasis on understanding of basic principles that distinguish nanostructures (with feature size below 100 nm) from more common microstructured materials. Explanation of new phenomena that emerge only in very small systems, using simple concepts from quantum mechanics and thermodynamics. Topics include structure and electronic properties of quantum dots, wires, nanotubes, and multilayers, self-assembly on surfaces and in liquid solutions, mechanical properties of nanostructured metamaterials, molecular electronics, spin-based electronics, and proposed realizations of quantum computing. Discussion of current and future directions of this rapidly growing field using examples from modern scientific literature. Letter grading.

**CM280. Introduction to Biomaterials (4)** (Same as Bioengineering CM278.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course 104, or Chemistry 20A, 20B, and 20L. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM180. Letter grading.

**282. Exploration of Advanced Topics in Materials Science and Engineering (2)** Lecture, one hour; discussion, one hour; outside study, four hours. Researchers from leading research institutions around world deliver lectures on advanced research topics in materials science and engineering. Student groups present summary previews of topics prior to lecture. Class discussions follow each presentation. May be repeated for credit. S/U grading.

**296. Seminar: Advanced Topics in Materials Science and Engineering (2)** Seminar, two hours; outside study, four hours. Advanced study and analysis of current topics in materials science and engineering. Discussion of current research and literature in research specialty of faculty members teaching course. May be repeated for credit. S/U grading.

**297B. Material Processing in Manufacturing (4)** (Same as Mechanical and Aerospace Engineering M297B.) Lecture, four hours; outside study, eight hours. Enforced requisite: Mechanical and Aerospace Engineering 183A. Thermodynamics, principles of material processing: phase equilibria and transitions, transport mechanisms of heat and mass, nucleation and growth of microstructure. Applications in casting/solidification, welding, consolidation, chemical vapor deposition, infiltration, composites. Letter grading.

**297C. Composites Manufacturing (4)** (Same as Mechanical and Aerospace Engineering M297C.) Lecture, four hours; outside study, eight hours. Requisites: course 151, Mechanical and Aerospace Engineering 166C. Matrix materials, fibers, fiber preforms, elements of processing, autoclave/compression molding, filament winding, pultrusion, resin transfer molding, automation, material removal and assembly, metal and ceramic matrix composites, quality assurance. Letter grading.

**298. Seminar: Engineering (2 to 4)** Seminar, to be arranged. Limited to graduate materials science and engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

**596. Directed Individual or Tutorial Studies (2 to 8)** Tutorial, to be arranged. Limited to graduate materials science and engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination (2 to 12)** Tutorial, to be arranged. Limited to graduate materials science and engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examinations (2 to 16)** Tutorial, to be arranged. Limited to graduate materials science and engineering students. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination (2 to 16)** Tutorial, to be arranged. Limited to graduate materials science and engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis (2 to 12)** Tutorial, to be arranged. Limited to graduate materials science and engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 16)** Tutorial, to be arranged. Limited to graduate materials science and engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

# Mathematics

## Mathematics Courses

### Lower Division

**1. Precalculus (4)** Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Requisite: successful completion of Mathematics Diagnostic Test. Function concept. Linear and polynomial functions and their graphs, applications to optimization. Inverse, exponential, and logarithmic functions. Trigonometric functions. P/NP or letter grading.

**3A. Calculus for Life Sciences Students (4)** Lecture, three hours; discussion, one hour. Preparation: three and one half years of high school mathematics (including trigonometry). Enforced requisite: successful completion of Mathematics Diagnostic Test (score of 48 or better) or course 1 with grade of C– or better. Not open for credit to students with credit in another calculus sequence. Modeling with functions, limits, and derivatives, decisions and optimization in biology, derivative rules and tools. P/NP or letter grading.

**3B. Calculus for Life Sciences Students (4)** Lecture, three hours; discussion, one hour. Requisite: course 3A with grade of C– or better. Not open for credit to students with credit for course 31B. Applications of differentiation, integration, differential equations, linear models in biology, phase lines and classifying equilibrium values, bifurcations. P/NP or letter grading.

**3C. Ordinary Differential Equations with Linear Algebra for Life Sciences Students (4)** Lecture, three hours; discussion, one hour. Requisite: course 3B with grade of C– or better. Multivariable modeling, matrices and vectors, eigenvalues and eigenvectors, linear and nonlinear systems of differential equations, probabilistic applications of integration. P/NP or letter grading.

**11N. Gateway to Mathematics: Number Theory (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B. Introductory number theory course for freshmen and sophomores. Topics include prime number theory and cryptographic applications, factorization theory (in integers and Gaussian integers), Pythagorean triples, Fermat descent (for sums of squares and Fermat quartic), Pell's equation, and Diophantine approximation. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**31A. Differential and Integral Calculus (4)** Lecture, three hours; discussion, one hour. Preparation: at least three and one half years of high school mathematics (including some coordinate geometry and trigonometry). Requisite: successful completion of Mathematics Diagnostic Test or course 1 with grade of C– or better. Differential calculus and applications; introduction to integration. P/NP or letter grading.

**31AL. Differential and Integral Calculus Laboratory (5)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: at least three and one-half years of high school mathematics (including some coordinate geometry and trigonometry). Requisite: successful completion of Mathematics Diagnostic Test or course 1 with grade of C– or better. Not open for credit to students with credit for course 31A. Intended for students who still need to review precalculus material (laboratory) while starting calculus. Differential calculus and applications; introduction to integration. P/NP or letter grading.

**31B. Integration and Infinite Series (4)** Lecture, three hours; discussion, one hour. Requisite: course 31A with grade of C– or better. Not open for credit to students with credit for course 3B. Transcendental functions; methods and applications of integration; sequences and series. P/NP or letter grading.

**31BH. Integration and Infinite Series (Honors) (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of B or better. Honors course parallel to course 31B. P/NP or letter grading.

**31E. Calculus for Economics Students (4)** Lecture, three hours; discussion, one hour. Requisite: course 31A with grade of C– or better. Not open for credit to students with credit for course 3B, 3C, or 31B. Calculus for applications to economics. Partial differentiation, implicit functions, exponential and logarithmic functions, extrema, optimization, constrained optimization. P/NP or letter grading.

**32A. Calculus of Several Variables (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of C– or better. Introduction to differential calculus of several variables, vector field theory. P/NP or letter grading.

**32AH. Calculus of Several Variables (Honors) (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of B or better. Honors course parallel to course 32A. P/NP or letter grading.

**32B. Calculus of Several Variables (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 31B and 32A, with grades of C– or better. Introduction to integral calculus of several variables, line and surface integrals. P/NP or letter grading.

**32BH. Calculus of Several Variables (Honors) (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 31B and 32A, with grades of B or better. Honors course parallel to course 32B. P/NP or letter grading.

**32T. Essential Calculus for Mathematical Biologists (4)** (Same as Computational and Systems Biology M32 and Life Sciences M32.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 30A, 30B. Not open to students with credit for course 31A, 31B, 32A, or 32B. Designed for life sciences students. Methods and results of single and multivariable calculus essential for quantitative training in biology. Limits, differentiation (single and several variables), optimization, integration and methods of integration, Taylor polynomials and applications to approximation, Taylor and other power series, vector valued functions, gradients, and Lagrange multipliers. P/NP or letter grading.

**33A. Linear Algebra and Applications (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 3B or 31B or 32A with grade of C– or better. Introduction to linear algebra: systems of linear equations, matrix algebra, linear independence, subspaces, bases and dimension, orthogonality, least-squares methods, determinants, eigenvalues and eigenvectors, matrix diagonalization, and symmetric matrices. P/NP or letter grading.

**33AH. Linear Algebra and Applications (Honors) (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 3B or 31B or 32A with grade of B or better. Honors course parallel to course 33A. P/NP or letter grading.

**33B. Differential Equations (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 31B with grade of C– or better. Highly recommended: course 33A. First-order, linear differential equations; second-order, linear differential equations with constant coefficients; power series solutions; linear systems. P/NP or letter grading.

**42. Introduction to Data-Driven Mathematical Modeling: Life, Universe, and Everything (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, 32A, 32B, 33A, one statistics course from Statistics 10, 12, 13, one programming course from Computer Science 31, Program in Computing 10A, Statistics 20. Introduction to data-driven mathematical modeling combining data analysis with mechanistic modeling of phenomena from various applications. Topics include model formulation, data visualization, nondimensionalization and order-of-magnitude physics, introduction to discrete and continuous dynamical systems, and introduction to discrete and continuous stochastic models. Examples drawn from many fields and practice problems from Mathematical Contest in Modeling. P/NP or letter grading.

**61. Introduction to Discrete Structures (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B. Not open for credit to students with credit for course 180 or 184. Discrete structures commonly used in computer science and mathematics, including sets and relations, permutations and combinations, graphs and trees, induction. P/NP or letter grading.

**70. Introduction to Probability (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B. Introduction to probability through applications and examples. Topics include laws of large numbers, statistics, chance trees, conditional probability, Bayes' rule, continuous and discrete random variables, jointly distributed random variables, multivariate normal and conditional distributions. In-depth discussion of betting schemes in gambling, occurrence of rare events, coincidences, and statistical predictions. P/NP or letter grading.

**73XP. Key Issues in K-12 Mathematics (3)** (Formerly numbered 73SL.) Seminar, two hours; fieldwork, two hours. Introduction to K-12 mathematics activity in U.S. Cultivation of interest in teaching through exploration of sequences of mathematical content and habits of mind taught in K-12. Analysis of sequences of topics in current California State Standards in Mathematics (CCSS-M), mathematical structures that underlie these sequences, and cognitive aspects of learning mathematics. Experience with professional mathematician's habits of mind outlined in CCSS-M (including proof and mathematical modeling), and effective strategies for teaching mathematics to diverse student groups. Fieldwork in local mathematics classroom arranged by Cal Teach program. P/NP grading.

**74XP. Mathematics and Pedagogy for Teaching Elementary Mathematics (3)** (Formerly numbered 74SL.) Seminar, two hours; fieldwork, two hours. Development of professional mathematical and pedagogical understandings required to teach California's K-5 mathematics curriculum. Exploration of K-5 mathematics, practice of effective teaching strategies for all learners, and dis-

cussion of current research and standards in mathematics education. Fieldwork in local mathematics classrooms (observation and presenting lesson plan) arranged by Cal Teach program. P/NP grading.

**75XP. Mathematics and Pedagogy for Teaching Middle School Mathematics (3)** Seminar, two hours; fieldwork, two hours. Facilitates development of professional mathematical and pedagogical understandings required to teach California middle school mathematics curriculum. Exploration of topics in grades six through eight mathematics from professional perspective, practice with effective teaching strategies for all learners, and discussion of current research and standards in mathematics education. Clinical practice in local mathematics classrooms arranged by Cal Teach program. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**94. Mathematical Outreach: Explorations of Mathematics in the Physical World (6)** Lecture, twelve hours; discussion one hour. Preparation: three years of high school mathematics (to algebra II), some basic familiarity with computers. Uses inquiry-based mathematical modeling as a tool for understanding dynamics of physical systems and chemical processes. Fundamental concepts of single-variable calculus and models of dynamical processes in physics, chemistry, and other subjects in which quantities change with time. Use of computer program C&#43;&#43; for problem solving, plotting, and dynamical simulation in the laboratory. Exploration of current topics in metacognition and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. P/NP or letter grading.

**95. Transition to Upper-Division Mathematics (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 32A, 32B. Not open for credit to students with credit for course 131A or 132. Introduction to rigorous methods of proof-based upper-division mathematics courses. Basic logic; structure of mathematical proofs; sets, functions, and cardinality; natural numbers and induction; construction of real numbers; topology of real numbers; sequences and convergence; continuity. May not be applied toward major requirements. P/NP or letter grading.

**97. Variable Topics in Mathematics (4)** Lecture, three hours; discussion, one hour. Study of selected topics in mathematics at introductory level. P/NP or letter grading.

**98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors (1)** Laboratory, three hours. Corequisite: associated undergraduate lecture course in mathematics for life sciences majors. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

**98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors (1)** Laboratory, three hours. Corequisite: associated undergraduate lecture course in mathematics for physical sciences and engineering majors. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100. Problem Solving (4)** Lecture, three hours. Requisite: course 31A with grade of C– or better. Problem-solving techniques and mathematical topics useful as preparation for Putnam Examination and similar competitions. Continued fractions, inequalities, modular arithmetic, closed form evaluation of



sums and products, problems in geometry, rational functions and polynomials, other nonroutine problems. Participants expected to take Putnam Examination. P/NP grading.

**101. Advanced Problem Solving (4)** Lecture, three hours. Requisite: course 100 or significant experience with mathematical competitions. Enrollment based on one selection test or past Putnam results. Advanced problem solving techniques and mathematical topics useful as preparation for Putnam competition. Problems in abstract algebra, linear algebra, number theory, combinatorics, probability, real and complex analysis, differential, equations, Fourier analysis. Regular practice tests given, similar in difficulty to Putnam competition. May be repeated for maximum of 12 units. P/NP or letter grading.

**103A. Mathematics and Pedagogy for Teaching Middle School Mathematics (2)** Seminar, one hour; fieldwork (classroom observation and participation), two hours. Requisite: course 115A. Course 103A is enforced requisite to 103B, which is enforced requisite to 103C. Facilitates student development in mathematical and pedagogical understandings required to teach middle school mathematics curriculum. Exploration of California's grades 6 through 8 mathematics from professional perspective, practice with effective teaching strategies for all learners, and discussion of current research and standards in mathematics education with fieldwork in local mathematics classrooms. P/NP (undergraduates) or S/U (graduates) grading.

**103B. Observation and Participation: Mathematics Instruction (2)** Seminar, one hour; fieldwork (classroom observation and participation), two hours. Enforced requisite: course 103A. Observation, participation, or tutoring in mathematics classes at middle school and secondary levels. May be repeated for credit. P/NP (undergraduates) or S/U (graduates) grading.

**103C. Observation and Participation: Mathematics Instruction (2)** Seminar, one hour; fieldwork (classroom observation and participation), two hours. Enforced requisite: course 103B. Observation, participation, or tutoring in mathematics classes at middle school and secondary levels. May be repeated for credit. P/NP (undergraduates) or S/U (graduates) grading.

**105A. Mathematics and Pedagogy for Teaching Secondary School Mathematics (4)** Lecture, four hours; fieldwork, 30 minutes. Requisites: courses 110A (or 117), 120A (or 123), and 131A, with grades of C– or better. Course 105A is requisite to 105B, which is requisite to 105C. Mathematical knowledge and research-based pedagogy needed for teaching key geometry topics in secondary school, including axiomatic systems, measure, and geometric transformations. Introduction to professional standards and current research for teaching secondary school mathematics. Letter grading.

**105B. Mathematics and Pedagogy for Teaching Secondary School Mathematics (4)** Lecture, four hours; fieldwork, 30 minutes. Requisites: courses 105A, 110A (or 117), 120A (or 123), and 131A, with grades of C– or better. Mathematical knowledge and research-based pedagogy needed for teaching key polynomial, rational, and transcendental functions and related equations in secondary school; professional standards and current research for teaching secondary school mathematics. Letter grading.

**105C. Mathematics and Pedagogy for Teaching Secondary School Mathematics (4)** Lecture, four hours; fieldwork, 30 minutes. Requisites: courses 105A, 105B, 110A (or 117), 120A (or 123), and 131A, with grades of C– or better. Mathematical knowledge and research-based pedagogy needed for teaching key analysis, probability, and statistics topics in secondary school; professional standards and current research for teaching secondary school mathematics. Letter grading.

**106. History of Mathematics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, 32A. Roots of modern mathematics in ancient Babylonia and Greece, including place value number systems and proof. Development of algebra through Middle Ages to Fermat and Abel, invention of analytic geometry and calculus. Selected topics. P/NP or letter grading.

**110A. Algebra (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for course 117. Ring of integers, integral domains, fields, polynomial domains, unique factorization. P/NP or letter grading.

**110AH. Algebra (Honors) (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 110A.

**110B. Algebra (4)** Lecture, three hours; discussion, one hour. Requisite: course 110A or 117. Groups, structure of finite groups. P/NP or letter grading.

**110BH. Algebra (Honors) (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 110B.

**110C. Algebra (4)** Lecture, three hours; discussion, one hour. Requisites: courses 110A, 110B. Field extensions, Galois theory, applications to geometric constructions, and solvability by radicals.

**111. Theory of Numbers (4)** Lecture, three hours; discussion, one hour. Requisite: courses 110A. Algebraic number theory (including prime ideal theory), cyclotomic fields and reciprocity laws, Diophantine equations (especially quadratic forms, elliptic curves), equations over finite fields, topics in theory of primes, including prime number theorem and Dirichlet's theorem. P/NP or letter grading.

**114C. Computability Theory (4)** Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Effectively calculable, Turing computable, and recursive functions; Church/Turing thesis. Normal form theorem; universal functions; unsolvability and undecidability results. Recursive and recursively enumerable sets; relative recursiveness, polynomial-time computability. Arithmetical hierarchy. P/NP or letter grading.

**114L. Mathematical Logic (4)** Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Introduction to mathematical logic, aiming primarily at completeness and incompleteness theorems of Gödel. Propositional and predicate logic; syntax and semantics; formal deduction; completeness, compactness, and Lowenheim/Skolem theorems. Formal number theory: nonstandard models; Gödel incompleteness theorem. P/NP or letter grading.

**114S. Introduction to Set Theory (4)** (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

**115A. Linear Algebra (5)** Lecture, three hours; discussion, two hours. Requisite: course 33A. Techniques of proof, abstract vector spaces, linear transformations, and matrices; determinants; inner product spaces; eigenvector theory. P/NP or letter grading.

**115AH. Linear Algebra (Honors) (5)** Lecture, three hours; discussion, two hours. Requisite: course 33A with grade of B or better. Honors course parallel to course 115A. P/NP or letter grading.

**115B. Linear Algebra (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Linear transformations, conjugate spaces, duality; theory of a single linear transformation, Jordan normal form; bilinear forms, quadratic forms; Euclidean and unitary spaces, symmetric skew and orthogonal linear transformations, polar decomposition. P/NP or letter grading.

**116. Mathematical Cryptology (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Program in Computing 130. Introduction to mathematical cryptology using methods of number theory, algebra, probability. Topics include symmetric and public-key cryptosystems, one-way functions, signatures, key exchange, groups, primes, pseudoprimes, primality tests, quadratic reciprocity, factoring, rho method, RSA, discrete logs. P/NP or letter grading.

**117. Algebra for Applications (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for course 110A. Integers, congruences; fields, applications of finite fields; polynomials; permutations, introduction to groups.

**118. Mathematical Methods of Data Theory (4)** Lecture, three hours; discussion, one hour. Requisites: courses 42, 115A. Introduction to computational methods for data problems with focus on linear algebra and optimization. Matrix and tensor factorization, PageRank, assorted other topics in matrices, linear programming, unconstrained optimization, constrained optimization, integer optimization, dynamic programming, and stochastic optimization. P/NP or letter grading.

**120A. Differential Geometry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, 131A. Course 120A is requisite to 120B. Curves in 3-space, Frenet formulas, surfaces in 3-space, normal curvature, Gaussian curvature, congruence of curves and surfaces, intrinsic geometry of surfaces, isometries, geodesics, Gauss/Bonnet theorem. P/NP or letter grading.

**120B. Differential Geometry (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, 120A, 131A. Curves in 3-space, Frenet formulas, surfaces in 3-space, normal curvature, Gaussian curvature, congruence of curves and surfaces, intrinsic geometry of surfaces, isometries, geodesics, Gauss/Bonnet theorem. P/NP or letter grading.

**121. Introduction to Topology (4)** Requisite: course 131A. Metric and topological spaces, completeness, compactness, connectedness, functions, continuity, homeomorphisms, topological properties.

**123. Foundations of Geometry (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Axioms and models, Euclidean geometry, Hilbert axioms, neutral (absolute) geometry, hyperbolic geometry, Poincaré model, independence of parallel postulate.

**131A. Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Recommended: course 115A. Rigorous introduction to foundations of real analysis; real numbers, point set topology in Euclidean space, functions, continuity. P/NP or letter grading.

**131AH. Analysis (Honors) (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B and 33B, with grades of B or better. Recommended: course 115A. Honors course parallel to course 131A. P/NP or letter grading.

**131B. Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 33B, 115A, 131A. Derivatives, Riemann integral, sequences and series of functions, power series, Fourier series. P/NP or letter grading.

**131BH. Analysis (Honors) (4)** Lecture, three hours; discussion, one hour. Honors course parallel to course 131B. P/NP or letter grading.

**131C. Topics in Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 131A-131B. Advanced topics in analysis, such as Lebesgue integral, integration on manifolds, harmonic analysis. Content varies from year to year. May be repeated for credit by petition.

**132. Complex Analysis for Applications (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Introduction to basic formulas and calculation procedures of complex analysis of one variable relevant to applications. Topics include Cauchy/Riemann equations, Cauchy integral formula, power series expansion, contour integrals, residue calculus.

**132H. Complex Analysis (Honors) (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, and 131A, with grades of B or better. Specifically designed for students who have strong commitment to pursue graduate studies in mathematics. Introduction to complex analysis, with more emphasis on proofs. Honors course parallel to course 132. P/NP or letter grading.

**133. Introduction to Fourier Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B, 131A. Fourier series, Fourier transform in one and several variables, finite Fourier transform. Applications, in particular, to solving differential equations. Fourier inversion formula, Plancherel theorem, convergence of Fourier series, convolution. P/NP or letter grading.

**134. Linear and Nonlinear Systems of Differential Equations (4)** Lecture, three hours; discussion, one hour. Requisite: course 33B. Dynamical systems analysis of nonlinear systems of differential equations. One- and two-dimensional flows. Fixed points, limit cycles, and stability analysis. Bifurcations and normal forms. Elementary geometrical and topological results. Applications to problems in biology, chemistry, physics, and other fields. P/NP or letter grading.

**135. Ordinary Differential Equations (4)** Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. Selected topics in differential equations. Laplace transforms, existence and uniqueness theorems, Fourier series, separation of variable solutions to partial differential equations, Sturm/Liouville theory, calculus of variations, two-point boundary value problems, Green's functions. P/NP or letter grading.

**136. Partial Differential Equations (4)** Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. Linear partial differential equations, boundary and initial value problems; wave equation, heat equation, and Laplace equation; separation of variables, eigenfunction expansions; selected topics, as method of characteristics for nonlinear equations.

**142. Mathematical Modeling (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Introduction to fundamental principles and spirit of applied mathematics. Emphasis on manner in which mathematical models are constructed for physical problems. Illustrations from many fields of endeavor, such as physical sciences, biology, economics, and traffic dynamics.

**146. Methods of Applied Mathematics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Integral equations, Green's function, and calculus of variations. Selected applications from control theory, optics, dynamical systems, and other engineering problems.

**148. Experience of Data Science (4)** (Same as Statistics M148.) Lecture, four hours. Requisites: courses 118, 131A, 156 or Statistics 101C, 170S or Statistics 100B, Statistics 101A. Students solve real data science problems for community- or campus-based clients. Students work in small groups with faculty member and client to frame client's question in data science terms, create mathematical models, analyze data, and report results. Students may elect to undertake research on foundations of data science, studying advanced topics and writing senior thesis with discussion of findings or survey of literature on chosen foundational topic. Development of collaborative skills, communication principles, and discussion of ethical issues. Letter grading.

**151A. Applied Numerical Methods (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, Program in Computing 10A or Computer Science 31. Introduction to numerical methods with emphasis on

algorithms, analysis of algorithms, and computer implementation issues. Solution of nonlinear equations. Numerical differentiation, integration, and interpolation. Direct methods for solving linear systems. Letter grading.

**151AH. Numerical Analysis Part 1 (Honors) (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, 131A, Computer Science 31 or Programming in Computing 10A or equivalent, with grades of B or better. Not open for credit to students with credit for course 151A. Rigorous introduction to numerical algorithms including necessary skills to apply algorithms in statistics, imaging, data science, engineering, and related fields. Root finding, solving linear systems, interpolation, quadrature, and finding eigenvalues. MATLAB programming. P/NP or letter grading.

**151B. Applied Numerical Methods (4)** Lecture, three hours; discussion, one hour. Requisite: course 151A. Introduction to numerical methods with emphasis on algorithms, analysis of algorithms, and computer implementation issues. Solution of nonlinear equations. Numerical differentiation, integration, and interpolation. Direct methods for solving linear systems. Letter grading.

**151BH. Numerical Analysis Part 2 (Honors) (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A or 115AH, 131A or 131AH, 151A or 151AH, Computer Science 31 or Programming in Computing 10A, with grades of B or better. Rigorous introduction to numerical algorithms including necessary skills to apply algorithms in statistics, imaging, data science, engineering and related fields. Finding eigenvalues, finding numerical solutions to ordinary differential equations, the least squares problem and the fast Fourier transform. MATLAB programming. Honors course parallel to course 151B. P/NP or letter grading.

**155. Mathematical Imaging (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, Program in Computing 10A or Computer Science 31. Imaging geometry. Image transforms. Enhancement, restoration, and segmentation. Descriptors. Morphology. P/NP or letter grading.

**156. Machine Learning (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A, 164, 170A or 170E or Statistics 100A, and Computer Science 31 or Program in Computing 10A. Strongly recommended requisite: Program in Computing 16A or Statistics 21. Introductory course on mathematical models for pattern recognition and machine learning. Topics include parametric and nonparametric probability distributions, curse of dimensionality, correlation analysis and dimensionality reduction, and concepts of decision theory. Advanced machine learning and pattern recognition problems, including data classification and clustering, regression, kernel methods, artificial neural networks, hidden Markov models, and Markov random fields. Projects in MATLAB to be part of final project presented in class. P/NP or letter grading.

**164. Optimization (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 115A, 131A. Not open for credit to students with credit for former Electrical Engineering 136. Fundamentals of optimization. Linear programming: basic solutions, simplex method, duality theory. Unconstrained optimization, Newton method for minimization. Nonlinear programming, optimality conditions for constrained problems. Additional topics from linear and nonlinear programming. P/NP or letter grading.

**167. Mathematical Game Theory (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Quantitative modeling of strategic interaction. Topics include extensive and normal form games, background probability, lotteries, mixed strategies, pure and mixed Nash equilibria and refinements, bargaining; emphasis on economic examples. Optional topics include repeated games and evolutionary game theory. P/NP or letter grading.

**168. Introduction to Networks (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A, 170E (or 170A or Electrical and Computer Engineering 131A or Statistics 100A). Introduction to network science (including theory, computation, and applications), which can be used to study complex systems of interacting agents. Study of networks in technology, social, information, biological, and mathematics involving basic structural features of networks, generative models of networks, network summary statistics, centrality, random graphs, clustering, and dynamical processes on networks. Introduction to advanced topics as time permits. P/NP or letter grading.

**170A. Probability Theory I (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33A, 131A. Not open to students with credit for course 170E, Electrical and Computer Engineering 131A, or Statistics 100A. Rigorous presentation of probability theory based on real analysis. Probability space, probability and conditional probability, independence, Bayes' rule, discrete and continuous random variables and their distributions, expectation, moments and variance, conditional distribution and expectation, weak law of large numbers. P/NP or letter grading.

**170B. Probability Theory II (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 131A, 170A. Continuation of rigorous presentation of probability theory based on real analysis. Moments and generating functions; laws of large numbers, central limit theorem, and convergence in distri-

bution; branching processes; random walks; Poisson and other random processes in continuous time. Advance topics in probability theory. P/NP or letter grading.

**170E. Introduction to Probability and Statistics 1: Probability (4)** Lecture, three hours; discussion, one hour. Requisite: course 32B. Highly recommended: course 61 or 70. Not open to students with credit for course 170A, Electrical and Computer Engineering 131A, or Statistics 100A. Introduction to probability theory with emphasis on topics relevant to applications. Topics include discrete (binomial, Poisson, etc.) and continuous (exponential, gamma, chi-square, normal) distributions, bivariate distributions, distributions of functions of random variables (including moment generating functions and central limit theorem). P/NP or letter grading.

**170S. Introduction to Probability and Statistics 2: Statistics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, and 170A or 170E or Statistics 100A. Not open to students with credit for Statistics 100B. Introduction to statistics. Topics include sampling, estimation (maximum likelihood and Bayesian), properties of estimators, regression, confidence intervals, hypotheses testing, analysis of variance. P/NP or letter grading.

**171. Stochastic Processes (4)** Lecture, three hours; discussion, one hour. Requisites: courses 33A, 170E (or 170A or Statistics 100A). Discrete Markov chains, continuous-time Markov chains, renewal theory. P/NP or letter grading.

**174E. Mathematics of Finance for Mathematics/Economics Students (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 33A, and 170A or 170E or Statistics 100A. Not open for credit to students with credit for course 174A, Economics 141, or Statistics C183/C283. Mathematical modeling of financial securities in discrete and continuous time. Forwards, futures, hedging, swaps, uses and pricing (tree models and Black-Scholes) of European and American options, Greeks and numerical methods. P/NP or letter grading.

**177. Theory of Interest and Applications (4)** Lecture, three hours; discussion, one hour. Requisite: course 32B. Types of interest, time value of money, annuities and similar contracts, loans, bonds, portfolios and general cash flows, rate of return, term structure of interest rates, duration, convexity and immunization, interest rate swaps, financial derivatives, forwards, futures, and options. Letter grading.

**178A. Foundations of Actuarial Mathematics: Life Insurance and Annuities (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32B, 170A or 170E (or Statistics 100A), 175 or 177. Introduction to mathematics associated with long-term insurance coverages. Single- and multiple-life survival models, annuities, premium calculations and policy values, reserves, pension plans and retirement benefits. Letter grading.

**178B. Foundations of Actuarial Mathematics: Additional Topics in Long-Term Actuarial Mathematics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 170B or 170S (or Statistics 100B), 178A. Multistate models, covers pensions, health insurances, and profit-testing. Study of probability distributions employed most commonly in actuarial theory. Beginning study of short-term actuarial mathematics. Letter grading.

**178C. Foundations of Actuarial Mathematics: Loss Models (4)** Lecture, three hours; discussion, one hour. Requisite: course 178B. Study of loss models associated with actuarial problems. Covers severity, frequency, and aggregate loss models, parameter estimation (frequentist, Bayesian), model selection, and credibility. Letter grading.

**179. Advanced Topic in Financial Mathematics (4)** Lecture, three hours; discussion, one hour. Requisite: course 174E. Continuation of course 174E. In-depth study of risk measures and instruments of risk management in investment portfolios and corporate financial structure. Exotic and real options, value at risk, mean-variance analysis, portfolio optimization, risk analysis, capital asset pricing model, market efficiency, and Modigliani-Miller theory. P/NP or letter grading.

**180. Graph Theory (4)** Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, 61. Strongly recommended: course 115A. Designed for mathematics and computer science and engineering students. Graphs and trees. Planarity, graph colorings. Set systems. Ramsey theory. Random graphs. Linear algebra methods. P/NP or letter grading.

**182. Algorithms (4)** Lecture, three hours; discussion, one hour. Requisite: course 3C or 32A, and 61. Not open for credit to students with credit for Computer Science 180. Graphs, greedy algorithms, divide and conquer algorithms, dynamic programming, network flow. Emphasis on designing efficient algorithms useful in diverse areas such as bioinformatics and allocation of resources. P/NP or letter grading.

**184. Enumerative Combinatorics (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 31A, 31B, 61, 115A. Designed for mathematics and physics students. Permutations and combinations, counting principles, recurrence relations, and generating functions. Application to asymptotic and probabilistic enumeration. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190A. Seminar: Current Literature in History and Development of Mathematics (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190B. Seminar: Current Literature in Number Theory (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190C. Seminar: Current Literature in Algebra (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190D. Seminar: Current Literature in Logic (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190E. Seminar: Current Literature in Geometry (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190F. Seminar: Current Literature in Topology (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190G. Seminar: Current Literature in Analysis (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190H. Seminar: Current Literature in Differential Equations (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190I. Seminar: Current Literature in Functional Analysis (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190J. Seminar: Current Literature in Applied Mathematics (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190K. Seminar: Current Literature in Probability (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190L. Seminar: Current Literature in Dynamical Systems (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190M. Seminar: Current Literature in Mathematics (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190N. Seminar: Current Literature in Combinatorics (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**190O. Seminar: Current Literature in Cryptography (1)** Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading.

**191. Variable Topics Research Seminars: Mathematics (4)** Seminar, three hours. Variable topics research course in mathematics that covers material not covered in regular mathematics upper-division curriculum. Reading, discussion, and development of culminating project. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**191H. Honors Research Seminars: Mathematics (4)** Seminar, three hours. Participating seminar on advanced topics in mathematics. Content varies from year to year. May be repeated for credit by petition. P/NP or letter grading.

**192A. Introduction to Collaborative Learning Theory and Practice (1)** (Formerly numbered 192A.) (Same as Atmospheric and Oceanic Sciences M192A, Chemistry M192E, Computer Science M192A, Life Sciences M192A, and Physics M192S.) Seminar, one hour. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. Letter grading.

**192B. Collaborative Learning Theory and Practice. (2 to 4)** Seminar, two to four hours. Requisite: course M192A (may be taken concurrently). Limited to students serving as learning assistants. Further exploration of current topics in pedagogy and education research focused on methods of learning in small groups and their practical application to supervise learning in UCLA mathematics courses. With instructor's guidance, students apply pedagogical principles based on current education research, assist with development of innovative instructional materials, and receive and generate frequent feedback on their activities. May be repeated three times for credit. May not be used to fulfill elective requirement for any mathematics major. Letter grading.

**195. Community Internships in Mathematics Education (4)** Tutorial, to be arranged. Limited to juniors/seniors. Internship to be supervised by Center for Community Learning and Mathematics Department. Students meet on regular basis with instructor, provide periodic reports of their experience, have assigned readings on mathematics education, and complete final paper. May not be repeated and may not be applied toward major requirements. Individual contract with supervising faculty member required. P/NP grading.

**197. Individual Studies in Mathematics. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. At discretion of chair and subject to availability of staff, individual intensive study of topics suitable for undergraduate course credit but not specifically offered as separate courses. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 12 units, but no more than one 197 or 199 course may be applied toward upper-division courses required for majors offered by Mathematics Department. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Mathematics. (2, 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Scheduled meetings to be arranged between faculty member and student. Culminating report required. May be repeated for maximum of 12 units, but no more than one 197 or 199 course may be applied toward upper-division courses required for majors offered by Mathematics Department. Individual contract required. P/NP or letter grading.

## Graduate

**201A. Topics in Algebra and Analysis (4)** Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward MA degree requirements.

**201B. Topics in Algebra and Analysis (4)** Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward MA degree requirements.

**201C. Topics in Algebra and Analysis (4)** Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward MA degree requirements.

**202A. Mathematical Models and Applications (4)** Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Development of mathematical theories describing various empirical situations. Basic characterizing postulates; development of a logical structure of theorems. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences. May not be applied toward MA degree requirements.

**202B. Mathematical Models and Applications (4)** Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Development of mathematical theories describing various empirical situations. Basic characterizing postulates; development of a logical structure of theorems. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences. May not be applied toward MA degree requirements.

**203. Master's Linear Algebra (4)** Lecture, four hours; discussion, one hour. Rigorous treatment of fundamental results of pure and applied linear algebra over fields. Applications to contemporary research. Preparation for linear algebra portion of UCLA Mathematics Basic Examination that is required of MA and PhD students. S/U or letter grading.

**204. Master's Analysis (4)** Lecture, four hours; discussion, one hour. Rigorous treatment of fundamental results of analysis. Applications to contemporary research. Preparation for analysis portion of UCLA Mathematics Basic Examination that is required of MA and PhD students. S/U or letter grading.

**205A. Number Theory (4)** Lecture, three hours. Requisites: courses 210A, 246A. Algebraic number theory, including ideal theory, valuations, local fields, cyclotomic fields. Introduction to class-field theory, analytic number theory, L-functions and class number formulas, and modular forms. S/U or letter grading.

**205B. Number Theory (4)** Lecture, three hours. Requisites: courses 210A, 246A. Algebraic number theory, including ideal theory, valuations, local fields, cyclotomic fields. Introduction to class-field theory, analytic number theory, L-functions and class number formulas, and modular forms. S/U or letter grading.

**205C. Number Theory (4)** Lecture, three hours. Requisites: courses 210A, 246A. Algebraic number theory, including ideal theory, valuations, local fields, cyclotomic fields. Introduction to class-field theory, analytic number theory, L-functions and class number formulas, and modular forms. S/U or letter grading.

**206A. Combinatorial Theory (4)** Generating functions. Probabilistic methods. Polya theorem. Enumerative graph theory. Partition theory. Number theoretical applications. Structure of graphs, matching theory, duality theorems. Packings, pavings, coverings, statistical designs, difference sets, triple systems, finite planes. Configurations, polyhedra. Ramsey theory, finite and transfinite, and applications.

**206B. Combinatorial Theory (4)** Generating functions. Probabilistic methods. Polya theorem. Enumerative graph theory. Partition theory. Number theoretical applications. Structure of graphs, matching theory, duality theorems. Packings, pavings, coverings, statistical designs, difference sets, triple systems, finite planes. Configurations, polyhedra. Ramsey theory, finite and transfinite, and applications.

**207A. Topics in Number Theory (4)** Lecture, three hours. Adelic analysis on  $GL(1)$  and  $GL(2)$ , especially Tate thesis and Hecke theory, automorphic representations. Special values of L-functions and p-adic L-functions, arithmetic theory of modular forms, advanced topics in analytic number theory. Arithmetic geometry, especially of modular curves. S/U or letter grading.

**207B. Topics in Number Theory (4)** Lecture, three hours. Adelic analysis on  $GL(1)$  and  $GL(2)$ , especially Tate thesis and Hecke theory, automorphic representations. Special values of L-functions and p-adic L-functions, arithmetic theory of modular forms, advanced topics in analytic number theory. Arithmetic geometry, especially of modular curves. S/U or letter grading.

**207C. Topics in Number Theory (4)** Lecture, three hours. Adelic analysis on  $GL(1)$  and  $GL(2)$ , especially Tate thesis and Hecke theory, automorphic representations. Special values of L-functions and p-adic L-functions, arithmetic theory of modular forms, advanced topics in analytic number theory. Arithmetic geometry, especially of modular curves. S/U or letter grading.

**208A. Topics in Applied Number Theory (4)** (Same as Computer Science M283A.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varshamov bounds, Shannon theorem. S/U or letter grading.

**208B. Topics in Applied Number Theory (4)** (Same as Computer Science M283B.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varshamov bounds, Shannon theorem. S/U or letter grading.

**209A. Cryptography (4)** (Same as Computer Science M282A.) Lecture, four hours; outside study, eight hours. Introduction to theory of cryptography, stressing rigorous definitions and proofs of security. Topics include notions of hardness, one-way functions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, secret-sharing, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, key-agreement, contract signing, and two-party secure computation with static security. Letter grading.

**209B. Cryptographic Protocols (4)** (Same as Computer Science M282B.) Lecture, four hours. Requisite: course M209A. Consideration of advanced cryptographic protocol design and analysis. Topics include noninteractive zero-knowledge proofs; zero-knowledge arguments; concurrent and non-black-box zero-knowledge; IP&equals;PSPACE proof, stronger notions of security for public-key encryption, including chosen-ciphertext security; secure multiparty computation; dealing with dynamic adversary; nonmalleability and composability of secure protocols; software protection; threshold cryptography; identity-based cryptography; private information retrieval; protection against man-in-middle attacks; voting protocols; identification protocols; digital cash schemes; lower bounds on use of cryptographic primitives, software obfuscation. May be repeated for credit with topic change. Letter grading.

**210A. Algebra (4)** Requisites: courses 110A, 110B, 110C. Students with credit for courses 110B and/or 110C cannot receive MA degree credit for courses 210B and/or 210C. Group theory, including theorems of Sylow and Jordan/Holder/Schreier; rings and ideals, factorization theory in integral domains, modules over principal ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

**210B. Algebra (4)** Requisites: courses 110A, 110B, 110C. Students with credit for courses 110B and/or 110C cannot receive MA degree credit for courses 210B and/or 210C. Group theory, including theorems of Sylow and Jordan/Holder/Schreier; rings and ideals, factorization theory in integral domains, modules over principal ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

**210C. Algebra (4)** Requisites: courses 110A, 110B, 110C. Students with credit for courses 110B and/or 110C cannot receive MA degree credit for courses 210B and/or 210C. Group theory, including theorems of Sylow and Jordan/Holder/Schreier; rings and ideals, factorization theory in integral domains, modules over principal ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

**211. Structure of Rings (4)** Requisite: course 210A. Radical, irreducible modules and primitive rings, rings and algebras with minimum condition.

**212A. Homological Algebra (4)** Lecture, three hours. Enforced requisite: course 210A. Modules over rings, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules. S/U or letter grading.

**212B. Homological Algebra (4)** Lecture, three hours. Requisites: courses 210A, 210B, 210C, 212A. Advanced topics in modern homological algebra, such as triangulated categories, differential graded algebras as dg-categories, tilting theory and applications of group cohomology to representation theory, stable categories and modular representation theory, and other current topics. S/U or letter grading.

**213A. Theory of Groups (4)** Requisite: course 210A. Topics include representation theory, transfer theory, infinite Abelian groups, free products and presentations of groups, solvable and nilpotent groups, classical groups, algebraic groups.

**213B. Theory of Groups (4)** Requisite: course 210A. Topics include representation theory, transfer theory, infinite Abelian groups, free products and presentations of groups, solvable and nilpotent groups, classical groups, algebraic groups.

**214A. Introduction to Algebraic Geometry (4)** Lecture, three hours. Requisite: course 215A (or 210A, 210B, and 210C with consent of instructor). Affine and projective varieties. Irreducibility, dimension, singular and smooth points. Rational maps, curves, intersections in projective space. Schemes. Proper and finite morphisms. Coherent and quasi-coherent sheaves. Divisors, line bundles, ampleness. S/U or letter grading.

**214B. Introduction to Algebraic Geometry (4)** Lecture, three hours. Requisite: course 214A. Cohomology of coherent sheaves. Flat morphisms, smooth morphisms. Riemann-Roch theorem for curves. Projective embeddings of curves, elliptic curves, canonical embedding. Introduction to birational geometry in higher dimensions. S/U or letter grading.

**215A. Commutative Algebra (4)** Prerequisite: course 210A or consent of instructor. Topics from commutative ring theory, including techniques of localization, prime ideal structure in commutative Noetherian rings, principal ideal theorem, Dedekind rings, modules, projective modules, Serre conjecture, regular local rings.

**215B. Commutative Algebra (4)** Prerequisite: course 210A or consent of instructor. Topics from commutative ring theory, including techniques of localization, prime ideal structure in commutative Noetherian rings, principal ideal theorem, Dedekind rings, modules, projective modules, Serre conjecture, regular local rings.

**216A. Further Topics in Algebra (4)** Lecture, three hours. Requisites: courses 210A, 210B, 210C. Closer examination of areas of current research in algebra, including algebraic geometry and K-theory. Variable content may include Abelian varieties, invariant theory, Hodge theory, geometry over finite fields, K-theory, homotopical algebra, and derived algebraic geometry. May be repeated for credit by petition. S/U or letter grading.

**216B. Further Topics in Algebra (4)** Lecture, three hours. Requisites: courses 210A, 210B, 210C. Closer examination of areas of current research in algebra, including algebraic geometry and K-theory. Variable content may include Abelian varieties, invariant theory, Hodge theory, geometry over finite fields, K-theory, homotopical algebra, and derived algebraic geometry. May be repeated for credit by petition. S/U or letter grading.

**216C. Further Topics in Algebra (4)** Lecture, three hours. Requisites: courses 210A, 210B, 210C. Closer examination of areas of current research in algebra, including algebraic geometry and K-theory. Variable content may include Abelian varieties, invariant theory, Hodge theory, geometry over finite fields, K-theory, homotopical algebra, and derived algebraic geometry. May be repeated for credit by petition. S/U or letter grading.

**217. Geometry and Physics (4)** (Same as Physics M236.) Lecture, three hours. Interdisciplinary course on topics at interface between physics quantum fields and superstrings and mathematics of differential and algebraic geometry. Topics include supersymmetry, Seiberg/Witten theory, conformal field theory, Calabi/Yau manifolds, mirror symmetry and duality, integrable systems. S/U grading.

**218A. Discrete Mathematics: Probabilistic Methods (4)** Lecture, three hours. Linearity of expectation, second moment method, local lemma, correlation inequalities, martingales, large deviation inequalities, Janson and Talagrand inequalities, and pseudo-randomness. S/U or letter grading.

**218B. Discrete Mathematics: Algebraic Methods (4)** Lecture, three hours. Basic dimension arguments, spaces of polynomials and tensor product methods, eigenvalues of graphs and their application, combinatorial Nullstellensatz and Chevalley/Warning theorem. Counterexample to Borsuk conjecture, chromatic number of unit distance graph of Euclidean space, explicit constructions of Ramsey graphs, other topics. S/U or letter grading.

**218C. Topics in Discrete Mathematics (4)** Lecture, three hours. Examination of variety of methods, approaches, and techniques that were developed in last 30 years in discrete mathematics. Topics may include extremal problems for graphs and set systems, Ramsey theory, additive number theory combinatorial geometry, topological methods in combinatorics, entropy and other

tools from information theory, discrete harmonic analysis and its applications to combinatorics and theoretical computer science. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

**220A. Mathematical Logic (4)** Lecture, three hours. Requisite: course M114S. Fundamental methods and results in mathematical logic, using mathematical methods to reason about existence or nonexistence of proofs and computations in many different settings. Topics include compactness theorem, saturation of models, completeness and incompleteness theorems of Gödel, Turing computability and degrees of unsolvability, recursion in Baire space, Zermelo/Fraenkel axioms, universe of constructible sets, and related equiconsistency results in set theory. S/U or letter grading.

**220B. Mathematical Logic (4)** Lecture, three hours. Requisite: course M114S. Fundamental methods and results in mathematical logic, using mathematical methods to reason about existence or nonexistence of proofs and computations in many different settings. Topics include compactness theorem, saturation of models, completeness and incompleteness theorems of Gödel, Turing computability and degrees of unsolvability, recursion in Baire space, Zermelo/Fraenkel axioms, universe of constructible sets, and related equiconsistency results in set theory. S/U or letter grading.

**220C. Mathematical Logic (4)** Lecture, three hours. Requisite: course M114S. Fundamental methods and results in mathematical logic, using mathematical methods to reason about existence or nonexistence of proofs and computations in many different settings. Topics include compactness theorem, saturation of models, completeness and incompleteness theorems of Gödel, Turing computability and degrees of unsolvability, recursion in Baire space, Zermelo/Fraenkel axioms, universe of constructible sets, and related equiconsistency results in set theory. S/U or letter grading.

**222A. Lattice Theory and Algebraic Systems (4)** Lecture, three hours. Requisite: course 210A. Partially ordered sets, lattices, distributivity, modularity; completeness, interaction with combinatorics, topology, and logic; algebraic systems, congruence lattices, subdirect decomposition, congruence laws, equational bases, applications to lattices.

**222B. Lattice Theory and Algebraic Systems (4)** Lecture, three hours. Requisite: course 210A. Partially ordered sets, lattices, distributivity, modularity; completeness, interaction with combinatorics, topology, and logic; algebraic systems, congruence lattices, subdirect decomposition, congruence laws, equational bases, applications to lattices.

**223C. Topics in Computability Theory (4)** Lecture, three hours. Requisites: courses 220A, 220B. Degrees of unsolvability, recursively enumerable sets, undecidable theories; inductive definitions, admissible sets and ordinals; recursion in higher types; recursion and complexity. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

**223D. Topics in Descriptive Set Theory (4)** Lecture, three hours. Requisites: courses 220A, 220B. Classical and effective results on Borel and projective sets; infinite games of perfect information and principle of determinacy; consequences of determinacy, including periodicity, structure theory of point-classes, and partition properties. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

**223M. Topics in Model Theory (4)** Lecture, three hours. Requisites: courses 220A, 220B. Ultraproducts, preservation theorems, interpolation theorems, saturated models, omitting types, categoricity, two cardinal theorems, enriched languages, soft model theory, and applied model theory. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

**223S. Topics in Set Theory (4)** Lecture, three hours. Requisites: courses 220A, 220B, 220C. Forcing and independence results, including independence of continuum hypothesis and independence of axiom of choice; inner model theory; large cardinals; proofs of determinacy; combinatorial set theory. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

**225A. Smooth Manifolds (4)** Lecture, three hours; discussion, one hour. Smooth manifolds and smooth maps; inverse and implicit function theorems, submersions, immersions, submanifolds; tangent and cotangent bundles, vector bundles; differential forms, exterior differentiation, and Lie derivatives; integration, Stokes' theorem, de Rham cohomology, and computations using the Mayer-Vietoris sequences; vector fields, integral curves, distributions, Frobenius' theorem. S/U or letter grading.

**225B. Differential Topology (4)** Lecture, three hours; discussion, one hour. Sard's theorem and transversality, Whitney embedding theorem, tubular neighborhoods; intersection theory, degree, vector fields and Poincaré-Hopf theorem, Lefschetz fixed-point formula; compactly supported cohomology, Poincaré duality, Thom isomorphism, and the Künneth theorem from the point

of view of de Rham theory; applications: homotopy types of self-maps of tori and spheres (Hopf degree theorem) and Lefschetz numbers of self-maps of spheres, real and complex projective spaces, and tori. S/U or letter grading.

**225C. Algebraic Topology (4)** Lecture, three hours; discussion, one hour. Homotopy theory: fundamental group, covering spaces, Van Kampen's theorem. Homology theory: singular homology, simplicial homology, homotopy invariance, relative homology, excision and Mayer-Vietoris, functoriality, relationship to the fundamental group, calculations with cellular complexes (CW complexes). Cohomology theory: singular cohomology, universal coefficient theorem, cup products. S/U or letter grading.

**226A. Differential Geometry (4)** Lecture, three hours. Requisite: course 225A. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, submanifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

**226B. Differential Geometry (4)** Lecture, three hours. Requisite: course 225A. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, submanifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

**226C. Differential Geometry (4)** Lecture, three hours. Requisite: course 225A. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, submanifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

**227A. Algebraic Topology (4)** Lecture, three hours. Requisite: course 225B. CW complexes, fiber bundles, homotopy theory, cohomology theory, spectral sequences.

**227B. Algebraic Topology (4)** Lecture, three hours. Requisite: course 225B. CW complexes, fiber bundles, homotopy theory, cohomology theory, spectral sequences.

**229A. Lie Groups and Lie Algebras (4)** Preparation: knowledge of basic theory of topological groups and differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell/Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semi-simple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl character formula.

**229B. Lie Groups and Lie Algebras (4)** Preparation: knowledge of basic theory of topological groups and differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell/Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semi-simple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl character formula.

**229C. Lie Groups and Lie Algebras (4)** Preparation: knowledge of basic theory of topological groups and differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell/Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semi-simple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl character formula.

**233. Partial Differential Equations on Manifolds (4)** Lecture, three hours. Requisites: courses 226A, 251A. Topics may include Laplacian operator on a Riemannian manifold, eigenvalues, Atiyah/Singer index theorem, isoperimetric inequalities, elliptic estimates, harmonic functions, function theory on manifolds, Green's function, heat equation, minimal hypersurfaces, prescribed curvature equations, harmonic maps, Yang/Mills equation, Monge/Ampere equations.

**234. Topics in Differential Geometry (4)** Lecture, three hours. Requisites: courses 226A, 226B. Complex and Kahler geometry, Hodge theory, homogeneous manifolds and symmetric spaces, finiteness and convergence theorems for Riemannian manifolds, almost flat manifolds, closed geodesics, manifolds of positive scalar curvature, manifolds of constant curvature. Topics vary from year to year. May be repeated for credit by petition.

**235. Topics in Manifold Theory (4)** Lecture, three hours. Requisites: courses 225A, 225B. Emphasis on low-dimensional manifolds. Structure and classification of manifolds, automorphisms of manifolds, submanifolds (e.g., knots and links). Topics vary from year to year. May be repeated for credit by petition.

**236. Topics in Geometric Topology (4)** Lecture, three hours. Requisites: courses 225A, 225B. Decomposition spaces, surgery theory, group actions, dimension theory, infinite dimensional topology. Topics vary from year to year. May be repeated for credit by petition.

**237. Topics in Algebraic Topology (4)** Lecture, three hours. Requisites: courses 227A, 227B. Fixed-point theory, fiber spaces and classifying spaces, characteristic classes, generalized homology and cohomology theories. Topics vary from year to year. May be repeated for credit by petition.

**238A. Dynamical Systems (4)** Lecture, three hours. Recommended preparation: first-year analysis courses. Topics include qualitative theory of differential equations, bifurcation theory, and Hamiltonian systems; differential dynamics, including hyperbolic theory and quasiperiodic dynamics; ergodic theory; low-dimensional dynamics. S/U or letter grading.

**238B. Dynamical Systems (4)** Lecture, three hours. Recommended preparation: first-year analysis courses. Topics include qualitative theory of differential equations, bifurcation theory, and Hamiltonian systems; differential dynamics, including hyperbolic theory and quasiperiodic dynamics; ergodic theory; low-dimensional dynamics. S/U or letter grading.

**240. Methods of Set Theory (4)** Lecture, three hours. Requisites: courses 110A, 110B, 121, 131A, 131B. Naive, axiomatic set theory, axiom of choice and its equivalents, well-orderings, transfinite induction, ordinal and cardinal arithmetic. Applications to algebra: Hamel bases, Stone representation theorem. Applications to analysis and topology: Cantor/Bendixson theorem, counterexamples in measure theory, Borel and analytic sets, Choquet theorem.

**245A. Real Analysis (4)** Lecture, three hours. Requisites: courses 121, 131A, 131B. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon/Nikodym theorem. Fourier transform and Plancherel on  $\mathbb{R}^n$  and  $\mathbb{T}^n$ .

**245B. Real Analysis (4)** Lecture, three hours. Requisites: courses 121, 131A, 131B. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon/Nikodym theorem. Fourier transform and Plancherel on  $\mathbb{R}^n$  and  $\mathbb{T}^n$ .

**245C. Real Analysis (4)** Lecture, three hours. Requisites: courses 121, 131A, 131B. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon/Nikodym theorem. Fourier transform and Plancherel on  $\mathbb{R}^n$  and  $\mathbb{T}^n$ .

**246A. Complex Analysis (4)** Requisites: courses 131A, 131B. Students with credit for course 132 cannot receive MA degree credit for course 246A. Cauchy/Riemann equations. Cauchy theorem. Cauchy integral formula and residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. Classical transcendental functions. Elliptic functions.

**246B. Complex Analysis (4)** Requisites: courses 131A, 131B. Cauchy/Riemann equations. Cauchy theorem. Cauchy integral formula and residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. Classical transcendental functions. Elliptic functions.

**246C. Complex Analysis (4)** Requisites: courses 131A, 131B. Cauchy/Riemann equations. Cauchy theorem. Cauchy integral formula and residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. Classical transcendental functions. Elliptic functions.

**247A. Classical Fourier Analysis (4)** Lecture, three hours. Requisites: courses 245A, 245B, 246A. Distribution on  $\mathbb{R}^n$  and  $\mathbb{T}^n$ . Principal values; other examples. Distributions with submanifolds as supports. Kernel theorem. Convolution; examples of singular integrals. Tempered distributions and Fourier transform theory on  $\mathbb{R}^n$ . Distributions with compact or one-sided supports and their complex Fourier transforms.

**247B. Classical Fourier Analysis (4)** Lecture, three hours. Requisites: courses 245A, 245B, 246A. Distribution on  $\mathbb{R}^n$  and  $\mathbb{T}^n$ . Principal values; other examples. Distributions with submanifolds as supports. Kernel theorem. Convolution; examples of singular integrals. Tempered distributions and Fourier transform theory on  $\mathbb{R}^n$ . Distributions with compact or one-sided supports and their complex Fourier transforms.

**250A. Ordinary Differential Equations (4)** Requisite: course 246A. Basic theory of ordinary differential equations. Existence and uniqueness of solutions. Continuity with respect to initial conditions and parameters. Linear systems and  $n$ th order equations. Analytic systems with isolated singularities. Self-adjoint boundary value problems on finite intervals.

**250B. Nonlinear Ordinary Differential Equations (4)** Requisite: course 250A. Asymptotic behavior of nonlinear systems. Stability. Existence of periodic solutions. Perturbation theory of two-dimensional real autonomous systems. Poincaré/Bendixson theory.

**250C. Advanced Topics in Ordinary Differential Equations (4)** Requisites: courses 250A, 250B. Selected topics, such as spectral theory or ordinary differential operators, nonlinear boundary value problems, celestial mechanics, approximation of solutions, and Volterra equations.

**251A. Introductory Partial Differential Equations (4)** Classical theory of heat, wave, and potential equations; fundamental solutions, characteristics and Huygens principle, properties of harmonic functions. Classification of second-order differential operators. Maximum principles, energy methods, uniqueness theorems. Additional topics as time permits.

**251B. Topics in Partial Differential Equations (4)** In-depth introduction to topics of current interest in partial differential equations or their applications.

**251C. Topics in Partial Differential Equations (4)** In-depth introduction to topics of current interest in partial differential equations or their applications.

**252A. Topics in Complex Analysis (4)** Lecture, three hours. Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Potential theory, subharmonic functions, harmonic measure; Hardy spaces; entire functions; univalent functions; Riemann surfaces; extremal length, variational methods, quasi-conformal mappings. Topics vary from year to year. S/U or letter grading.

**252B. Topics in Complex Analysis (4)** Lecture, three hours. Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Potential theory, subharmonic functions, harmonic measure; Hardy spaces; entire functions; univalent functions; Riemann surfaces; extremal length, variational methods, quasi-conformal mappings. Topics vary from year to year. S/U or letter grading.

**253A. Several Complex Variables (4)** Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Introduction to analytic functions of several complex variables. The  $\bar{\partial}$ -bar problem, Cousin problems, domains of holomorphy, complex manifolds.

**253B. Several Complex Variables (4)** Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Introduction to analytic functions of several complex variables. The  $\bar{\partial}$ -bar problem, Cousin problems, domains of holomorphy, complex manifolds.

**254A. Topics in Real Analysis (4)** Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Selected topics in analysis and its applications to geometry and differential equations. Topics may vary from year to year. May be repeated for credit by petition.

**254B. Topics in Real Analysis (4)** Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Selected topics in analysis and its applications to geometry and differential equations. Topics may vary from year to year. May be repeated for credit by petition.

**255A. Functional Analysis (4)** Requisites: courses 245A and 245B, or 265A and 265B, and 246A. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces including Hilbert spaces and  $C(X)$ .

**255B. Topics in Functional Analysis (4)** Requisite: course 255A. Topics include Banach algebras, operators on Banach spaces and Hilbert space, semi-groups of operators, linear topological vector spaces, and other related areas.

**255C. Topics in Functional Analysis (4)** Requisite: course 255A. Topics include Banach algebras, operators on Banach spaces and Hilbert space, semi-groups of operators, linear topological vector spaces, and other related areas.

**256A. Topological Groups and Their Representations (4)** Lecture, three hours. Requisite: course 255A. Topological groups and their basic properties. Haar measure. Compact groups and their representations. Duality and Fourier analysis on locally compact abelian groups. Induced representations, Frobenius reciprocity. Representations of special groups (Lorentz, Galilean, etc.). Projective representations. Representations of totally disconnected groups. S/U or letter grading.

**256B. Topological Groups and Their Representations (4)** Lecture, three hours. Requisite: course 255A. Topological groups and their basic properties. Haar measure. Compact groups and their representations. Duality and Fourier analysis on locally compact abelian groups. Induced representations, Frobe-



nus reciprocity. Representations of special groups (Lorentz, Galilean, etc.). Projective representations. Representations of totally disconnected groups. S/U or letter grading.

**259A. Operator Algebras in Hilbert Space (4)** Requisites: courses 255A, 255B, 255C. Selected topics from theories of  $C^*$  and von Neumann algebras. Applications.

**259B. Operator Algebras in Hilbert Space (4)** Requisites: courses 255A, 255B, 255C. Selected topics from theories of  $C^*$  and von Neumann algebras. Applications.

**260. Introduction to Applied Mathematics (4)** Requisite: course 142. Construction, analysis, and interpretation of mathematical models of problems which arise outside of mathematics.

**261. Game Theory (4)** Lecture, three hours. Designed for graduate mathematics students. Bargaining theory, core, value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs. S/U or letter grading.

**264. Applied Complex Analysis (4)** Requisite: course 246A. Topics include contour integration conformal mapping, differential equations in complex plane, special functions, asymptotic series, Fourier and Laplace transforms, singular integral equations.

**265A. Real Analysis for Applications (4)** Requisites: courses 131A, 131B. Not open for credit to students with credit for courses 245A, 245B, 245C. Lebesgue measure and integration on real line, absolutely continuous functions, functions of bounded variation,  $L^2$ - and  $L^p$ -spaces. Fourier series. General measure and integrations, Fubini and Radon/Nikodym theorems, representation of functionals, Fourier integrals.

**265B. Real Analysis for Applications (4)** Requisites: courses 131A, 131B. Not open for credit to students with credit for courses 245A, 245B, 245C. Lebesgue measure and integration on real line, absolutely continuous functions, functions of bounded variation,  $L^2$ - and  $L^p$ -spaces. Fourier series. General measure and integrations, Fubini and Radon/Nikodym theorems, representation of functionals, Fourier integrals.

**266A. Applied Ordinary Differential Equations (4)** Lecture, three hours; discussion, one hour. Requisites: courses 131A, 131B, 132, and 134 and 135, or 146. Spectral theory of regular boundary value problems and examples of singular Sturm/Liouville problems, related integral equations, phase/plane analysis of nonlinear equations. S/U or letter grading.

**266B. Applied Partial Differential Equations (4)** Prerequisite: course 266A or consent of instructor. Classification of equations, classical potential theory, Dirichlet and Neumann problems. Green's functions, spectral theory of Laplace equation in bounded domains, first-order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

**266C. Applied Partial Differential Equations (4)** Prerequisite: course 266A or consent of instructor. Classification of equations, classical potential theory, Dirichlet and Neumann problems. Green's functions, spectral theory of Laplace equation in bounded domains, first-order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

**266D. Applied Differential Equations (4)** Requisites: courses 266A, 266B, 266C. Advanced topics in linear and nonlinear partial differential equations, with emphasis on energy estimates, numerical methods, and applications to fluid mechanics. Additional topics include dispersive waves, systems with multiple time scales, and applications to fluid mechanics.

**266E. Applied Differential Equations (4)** Requisites: courses 266A, 266B, 266C. Advanced topics in linear and nonlinear partial differential equations, with emphasis on energy estimates, numerical methods, and applications to fluid mechanics. Additional topics include dispersive waves, systems with multiple time scales, and applications to fluid mechanics.

**268A. Functional Analysis for Applied Mathematics and Engineering (4)** (Same as Electrical and Computer Engineering M208B.) Lecture, four hours. Requisites: courses 115A and 115B (or Electrical and Computer Engineering 208A), 131A, 131B, 132. Topics may include  $L^p$  spaces, Hilbert, Banach, and separable spaces; Fourier transforms; linear functionals. Riesz representation theory, linear operators and their adjoints; self-adjoint and compact operators. Spectral theory. Differential operators such as Laplacian and eigenvalue problems. Resolvent distributions and Green's functions. Semigroups. Applications. S/U or letter grading.

**268B. Topics in Functional Analysis for Applied Mathematics and Engineering (4)** (Same as Electrical and Computer Engineering M208C.) Lecture, four hours. Requisite: course M268A. Semigroups of linear operators over Hilbert spaces; generator and resolvent, generation theorems, Laplace inversion formula. Dissipative operators and contraction semigroups. Analytic semigroups

and spectral representation. Semigroups with compact resolvents. Parabolic and hyperbolic systems. Controllability and stabilizability. Spectral theory of differential operators, PDEs, generalized functions. S/U or letter grading.

**268C. Topics in Applied Functional Analysis (4)** Lecture, three hours. Requisite: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions, and partial differential equations. S/U or letter grading.

**269A. Advanced Numerical Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A, 151A, 151B. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra. S/U or letter grading.

**269B. Advanced Numerical Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A, 151A, 151B. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra. S/U or letter grading.

**269C. Advanced Numerical Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A, 151A, 151B. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra. S/U or letter grading.

**270A. Mathematical Aspects of Scientific Computing: Techniques of Scientific Computing (4)** Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Mathematical modeling for computer applications, scientific programming languages, software development, graphics, implementation of numerical algorithms on different architectures, case studies. S/U or letter grading.

**270B. Mathematical Aspects of Scientific Computing: Computational Linear Algebra (4)** Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, algebraic eigenvalue problem. S/U or letter grading.

**270C. Mathematical Aspects of Scientific Computing: Computational Linear Algebra (4)** Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, algebraic eigenvalue problem. S/U or letter grading.

**270D. Mathematical Aspects of Scientific Computing: Computational Fluid Dynamics (4)** Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Basic equations, finite difference, finite element, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations. S/U or letter grading.

**270E. Mathematical Aspects of Scientific Computing: Computational Fluid Dynamics (4)** Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Basic equations, finite difference, finite element, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations. S/U or letter grading.

**270F. Mathematical Aspects of Scientific Computing: Parallel Numerical Algorithms (4)** Lecture, three hours. Requisites: courses 115A, 151A, 151B, 270B, 270C, Program in Computing 10A. Recommended: courses 270A, 270D, 270E. Design, analysis, and implementation of numerical algorithms on modern vector and parallel computers. Discussion of classical numerical algorithms and novel parallel algorithms. Emphasis on applications to PDEs. S/U or letter grading.

**271A. Tensor Analysis (4)** Requisite: course 131A. Algebra and calculus of tensors on  $n$ -dimensional manifolds. Curvilinear coordinates and coordinate-free methods. Covariant differentiation. Green/Stokes theorem for differential forms. Applications to topics such as continuum and particle mechanics.

**271B. Analytical Mechanics (4)** Prerequisites: course 271A, prior knowledge of mechanics. Newtonian and Lagrangian equations. Hamilton principle. Principle of least action. Holonomic and nonholonomic systems. Hamilton canonical equations, contact transformations, applications.

**271C. Introduction to Relativity (4)** Prerequisites: course 271A, prior knowledge of mechanics. Restricted theory of relativity. Extensions to general theory. Relativistic theory of gravitation.

**271D. Wave Mechanics (4)** General concepts of mechanical systems (states, space-time, logics, etc.). Classical and quantum examples. Correspondence principle. Spinors.

**272A. Foundations of Continuum Mechanics (4)** Lecture, three hours. Kinematic preliminaries, conservation laws for mass, momentum and energy, entropy production, constitutive laws. Linear elasticity, inviscid fluid, viscous

fluid. Basic theorems of fluid mechanics. Simple solutions. Low Reynolds number flow, Stokes drag. High Reynolds number flow, boundary layers. Two-dimensional potential flow, simple aerofoil. Compressible flow, shocks.

**272B. Mathematical Aspects of Fluid Mechanics (4)** Lecture, three hours. Requisite: course 272A. Review of basic theory of moving continua, fluid equations, integral theorems. Simple solutions, flow created by slowly moving bodies, flows where viscosity is negligible, vortices, boundary layers and their separation, water waves, ship waves, compressional waves, shock waves, turbulence theory (overview).

**272C. Magnetohydrodynamics (4)** Lecture, three hours. Requisite: course 272A. Basic electromagnetism. Steady flows, Hartmann layers, Alfvén theorem and waves. Compressible media. Magnetostatic equilibria and stability.

**272D. Rotating Fluids and Geophysical Fluid Dynamics (4)** Lecture, three hours. Effects of Coriolis forces on fluid behavior. Inviscid flows, Taylor/Proudman theorem, Taylor columns, motions of bodies, inertial waves in spheres and spherical shells, Rossby waves. Ekman layers, spin-up. Shallow-water theory, wind-driven ocean circulation. Effects of stratification, Benard convection. Baroclinic instability, Eady model. S/U or letter grading.

**273A. Optimization and Calculus of Variations: Basic Optimization Theory (4)** Lecture, three hours. Introduction to basic optimization theory, recognition of solutions, and geometry of optimization. Some convex analysis, separation hyperplane, and duality theory. Basic optimization algorithms and their rates of convergence. S/U or letter grading.

**273B. Optimization and Calculus of Variations: Calculus of Variations (4)** Lecture, three hours. Abstract convex analysis and variational problems. Convexity, differentiability, existence, and characterization of minimizers. Polar functions, Lagrangians, saddle points, and duality techniques. Application of abstract mathematical theory to optimization problems of calculus of variations on Sobolev spaces. S/U or letter grading.

**273C. Optimization and Calculus of Variations: Numerical Optimization (4)** Lecture, three hours. Derivation, analysis, and implementation of numerical methods for constrained and unconstrained optimization problems of variety of types and with data at different scales. S/U or letter grading.

**274A. Asymptotic Methods (4)** Lecture, three hours. Requisite: course 132. Fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase. Watson lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems. S/U or letter grading.

**274B. Perturbation Methods (4)** Lecture, three hours. Prerequisite: course 266A or equivalent. Boundary layer theory, matched asymptotic expansions, WKB theory. Problems with several time scales: Poincaré method, averaging techniques, multiple-scale analysis. Application to eigenvalue problems, non-linear oscillations, wave propagation, and bifurcation problems. Examples from various fields of science and engineering.

**274C. Perturbation Methods (4)** Lecture, three hours. Prerequisite: course 266A or equivalent. Boundary layer theory, matched asymptotic expansions, WKB theory. Problems with several time scales: Poincaré method, averaging techniques, multiple-scale analysis. Application to eigenvalue problems, non-linear oscillations, wave propagation, and bifurcation problems. Examples from various fields of science and engineering.

**275A. Probability Theory (4)** Lecture, three hours; discussion, one hour. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory. S/U or letter grading.

**275B. Probability Theory (4)** Lecture, three hours; discussion, one hour. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory. S/U or letter grading.

**275C. Stochastic Processes (4)** Lecture, three hours. Requisite: course 275B. Brownian motion, continuous-time martingales, Markov processes, potential theory. S/U or letter grading.

**275D. Stochastic Calculus (4)** Lecture, three hours. Requisite: course 275C. Stochastic integration, stochastic differential equations, Ito formula and its applications. S/U or letter grading.

**275E. Stochastic Particle Systems (4)** Lecture, three hours. Requisite: course 275C. Interacting particle systems, including contact process, stochastic Ising model, and exclusion processes; percolation theory. S/U or letter grading.

**276. Topics in Network Science (4)** Lecture, three hours. Requisites: courses 115A, 170A. Interesting and popular areas of network science. Topics vary from year to year and may include dynamical processes on networks, meso-scale structures in networks, time-dependent networks, multilayer networks, applications of networks, data analysis in networks, spatial networks, and

others. Discussion of recent review articles and research papers. Some presentations by students. Joint project on topic in network science possibly leading to publication. S/U or letter grading.

**280. Programming++ for Mathematics Graduate Students (4)** Lecture, three hours. Recommended preparation: at least one programming language. Limited to Mathematics PhD students. Core programming language concepts; object-oriented software design; creation of high-level functionality using object-oriented software constructs and techniques. Object oriented programming in C: variables, fundamental types, casting; control flow; functions, overloading, references, recursion; C-style arrays, vector and string class; programmer-defined structs and classes, constructor initializer lists; const correctness; overloading; memory management, copy and move constructors, copy and move assignment operators, destructors; iterators; inheritance and polymorphism. In-depth introduction to the Python programming language. Core Python language constructs: variables, control flow, functions, lists, tuples, sets, dictionaries, classes, magic methods, inheritance, exceptions; libraries including NumPy, Pandas, Matplotlib, scikit-learn. Application of C and/or Python to mathematical problems. May not be applied toward MA course requirements. S/U or letter grading.

**285A. Seminar: History and Development of Mathematics (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285B. Seminar: Number Theory (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285C. Seminar: Algebra (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285D. Seminar: Logic (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285E. Seminar: Geometry (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285F. Seminar: Topology (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285G. Seminar: Analysis (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285H. Seminar: Differential Equations (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285I. Seminar: Functional Analysis (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285J. Seminar: Applied Mathematics (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285K. Seminar: Probability (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285L. Seminar: Dynamical Systems (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285N. Seminar: Combinatorics (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**285P. Seminar: Representation Theory (4)** Seminar, three hours. No more than two 285 courses may be applied toward MA degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading.

**290A. Participating Seminar: Current Literature in History and Development of Mathematics (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290B. Participating Seminar: Current Literature in Number Theory (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290C. Participating Seminar: Current Literature in Algebra (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290D. Participating Seminar: Current Literature in Logic (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290E. Participating Seminar: Current Literature in Geometry (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290F. Participating Seminar: Current Literature in Topology (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290G. Participating Seminar: Current Literature in Analysis (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290H. Participating Seminar: Current Literature in Differential Equations (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290I. Participating Seminar: Current Literature in Functional Analysis (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290J. Participating Seminar: Current Literature in Applied Mathematics (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290K. Participating Seminar: Current Literature in Probability (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290L. Participating Seminar: Current Literature in Dynamical Systems (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290M. Participating Seminar: Current Literature in Mathematics (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290N. Participating Seminar: Current Literature in Combinatorics (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**290O. Participating Seminar: Current Literature in Cryptography (4)** Seminar, three hours. Designed for PhD students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading.

**296A. Research Seminar: History and Development of Mathematics (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296B. Research Seminar: Number Theory (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296C. Research Seminar: Algebra (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296D. Research Seminar: Logic (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296E. Research Seminar: Geometry (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296F. Research Seminar: Topology (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296G. Research Seminar: Analysis (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296H. Research Seminar: Differential Equations (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296I. Research Seminar: Functional Analysis (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296J. Research Seminar: Applied Mathematics (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296K. Research Seminar: Probability (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296L. Research Seminar: Dynamical Systems (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296M. Research Seminar: Mathematics (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**296N. Research Seminar: Combinatorics (1)** Seminar, two hours. Seminars and discussion by staff and students. May be repeated for credit. S/U grading.

**370A. Teaching of Mathematics (4)** Lecture, three hours; discussion, one hour. Requisite: course 33B. Limited to senior Mathematics Department majors. Course 370A is requisite to 370B. Topics in geometry, algebra, number theory, discrete mathematics, and functions presented from a problem-solving and student participation point of view, with emphasis on historical context and appropriate role of proof. S/U or letter grading.

**370B. Teaching of Mathematics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 33B, 370A. Limited to senior Mathematics Department majors. Topics in geometry, algebra, number theory, discrete mathematics, and functions presented from a problem-solving and student participation point of view, with emphasis on historical context and appropriate role of proof. S/U or letter grading.

**495. Teaching College Mathematics (2)** Seminar, one hour; two-day intensive training at beginning of Fall Quarter. Required of all new teaching assistants and new PhD students. Special course for teaching assistants designed to deal with problems and techniques of teaching college mathematics. S/U grading.

**495B. Technology and Teaching. (2 to 4)** Seminar, two hours; laboratory, one hour (optional). Requisite: course 495. Focus on undergraduate mathematics instruction. Web-based electronic communication, using technology for class organization, use of presentation software packages, and creation of electronic teaching portfolio. Provides mechanics of technology and forum for evaluation and comparison of technology in undergraduate mathematics teaching. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member, which may be preparation for MA examination. May be repeated for credit, but only two 596 courses (8 units) may be applied toward MA degree unless departmental consent is obtained. S/U or letter grading.

**599. Research in Mathematics. (2 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Study and research for PhD dissertation. May be repeated for credit. S/U grading.

## Program in Computing Courses

### Lower Division

**10A. Introduction to Programming (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. No prior programming experience assumed. Basic principles of programming, using C++; algorithmic, procedural problem solving; program design and development; basic data types, control structures and functions; functional arrays and pointers; introduction to classes for programmer-defined data types. P/NP or letter grading.

**10B. Intermediate Programming (4)** Lecture, three hours; discussion, one hour; laboratory, eight hours. Requisite: course 10A or Computer Science 31. Object oriented programming in C++; operator overloading; memory management, copy and move constructors, copy and move assignment operators, destructors; iterators; data structures and their implementation, linked lists, binary search trees; inheritance and polymorphism; recursion, algorithms for sorting and searching. P/NP or letter grading.

**10C. Advanced Programming (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. More advanced algorithms and data structuring techniques; additional emphasis on algorithmic efficiency; advanced features of C++, such as inheritance and virtual functions; graph algorithms. P/NP or letter grading.

**15. Introduction to Lisp and Symbolic Computation (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Introduction to symbolic computation using Lisp programming language. Basics: list structures, recursion, function abstraction. Advanced topics: knowledge representation, higher-order functions, problem-solving algorithms and heuristics. P/NP or letter grading.

**16A. Python with Applications I (5)** (Formerly numbered 16.) Lecture, three hours; discussion, two hours. Requisites: course 10A, Computer Science 31, or equivalent, with grades of C- or better. In-depth introduction to Python programming language for students who have already taken beginning programming course in strongly typed, compiled language (C++, C, or Fortran). Core Python language constructs, applications, text processing, data visualization, interaction with spreadsheets and SQL databases, and creation of graphical user interfaces. P/NP or letter grading.

**16B. Python with Applications II (5)** Lecture, three hours; discussion, two hours. Requisite: course 16A or equivalent. In-depth application of Python programming language to problems arising in variety of areas of current interest such as machine learning, computer vision, statistical analysis, numerical analysis, and data acquisition. Advanced Python programming techniques to improve computational efficiency. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Principles of Java Language with Applications (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Requisite: course 10A or Computer Science 31. Not open for credit to students with credit for course 3. Introduction to Java computer language. Class and interface hierarchies; graphics components and graphical user interfaces; streams; multithreading; event and exception handling. Issues in class design and design of interactive web pages. P/NP or letter grading.

**40A. Introduction to Programming for Internet (5)** Lecture, three hours; discussion, two hours. Requisites: course 10A or Computer Science 31 or equivalent, and one from course 10B, 16A, 20A, Computer Science 32, or equivalent, with grades of C- or better. Introduction to programming for World Wide Web for students with strong foundation in programming. HTML5 and CSS3 markup languages to design websites; client-side scripting with JavaScript to enable event-driven interactivity, animations, and cookie tracking; server-side scripting with PHP to render HTML pages, store, and retrieve data on server; and introduction to databases through SQLite3. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Special Topics in Programming. (1 to 4)** Lecture, one to three hours; discussion, zero to one hour. Enforced requisite: course 10A. Variable topics in programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**110. Parallel and Distributed Computing (5)** Lecture, three hours; discussion, two hours; laboratory, eight hours. Requisite: course 10B or equivalent familiarity with programming in C or C++; language. Introduction to programming of parallel computers. Shared and distributed memory parallel architectures; currently available parallel machines; parallel algorithms and program development; estimation of algorithmic performance; distributed computing; selected advanced topics. P/NP or letter grading.

**130. Cryptography (4)** Lecture, three hours; discussion, one hour; laboratory, three hours. Requisites: course 10B, Mathematics 115A. Design and analysis of cryptosystems for confidentiality and authentication. Classical cryptosystems and their security, modern private-key cryptosystems and applications, public-key cryptography and applications; generating prime numbers, factoring integers, discrete logarithms, digital signatures, perfect secrecy. P/NP or letter grading.

**187. Advanced Variable Topics in Programming (4)** Lecture, three hours; discussion, one hour. Variable topics in programming and mathematics of programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

### Graduate

**285C. Seminar: Computational Algebra (4)** Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading.

**285D. Seminar: Logic and Theory of Computation (4)** Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading.

**285J. Seminar: Scientific Computation (4)** Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading.

**285K. Seminar: Randomness and Computation (4)** Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading.

**285L. Seminar: Computational Statistics (4)** Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading.

**296. Participating Seminar: Logic and Theory of Computation (1 to 4)** Seminar, to be arranged. Seminar and discussion by staff and students. S/U grading.

# Mechanical and Aerospace Engineering

## Mechanical and Aerospace Engineering Courses

### Lower Division

**1. Undergraduate Seminar (1)** Seminar, one hour; outside study, two hours. Introduction by faculty members and industry lecturers to mechanical and aerospace engineering disciplines through current and emerging applications in aerospace, medical instrumentation, automotive, entertainment, energy, and manufacturing industries. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Computer Programming with MATLAB (4)** (Same as Civil Engineering M20.) Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Requisite: Mathematics 33A. Fundamentals of computer programming taught in context of MATLAB computing environment. Basic data types and control structures. Input/output. Functions. Data visualization. MATLAB-based data structures. Development of efficient codes. Introduction to object-oriented programming. Examples and exercises from engineering, mathematics, and physical sciences. Letter grading.

**82. Mathematics of Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 33A. Recommended prerequisite: course M20. Methods of solving ordinary differential equations in engineering. Review of matrix algebra, eigenvalues, and eigenvectors. Solution of systems of first-order ordinary differential equations using matrix methods. Introduction to Laplace transforms and their application to ordinary differential equations. Introduction to boundary value problems, partial differential equations, and separation of variables. Letter grading.

**94. Introduction to Computer-Aided Design and Drafting (4)** Lecture, two hours; laboratory, four hours. Fundamentals of computer graphics and two- and three-dimensional modeling on computer-aided design and drafting systems. Students use one or more online computer systems to design and display various objects. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101. Statics and Strength of Materials (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 31A, 31B, Physics 1A. Review of vector representation of forces, resultant force and moment, equilibrium of concurrent and nonconcurrent forces. Area moments and products of inertia. Support reactions, free-body diagrams. Forces in simple models of mechanical and aerospace structures. Internal forces in beams, shear and moment diagrams. Stress and strain components in solids, equilibrium equations, Hooke's law for isotropic solids. Bending and shear stresses in beams. Deflection of symmetric beams and indeterminate problems. Stresses in thin-walled pressure vessels and in circular cylinders under torsion. Letter grading.

**102. Dynamics of Particles and Rigid Bodies (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 101, Mathematics 33A, Physics 1A. Fundamental concepts of Newtonian mechanics. Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Impulse-momentum and work-energy relationships. Applications. Letter grading.

**103. Elementary Fluid Mechanics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 32B, 33A, Physics 1B. Introductory course dealing with application of principles of mechanics to flow of compressible and incompressible fluids. Letter grading.

**105A. Introduction to Engineering Thermodynamics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Chemistry 20B, Mathematics 32B. Phenomenological thermodynamics. Concepts of equilibrium, temperature, and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and thermodynamic properties. Engineering applications of these principles in analysis and design of closed and open systems. Letter grading.

**105D. Transport Phenomena (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 82, 103, 105A. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Letter grading.

**107. Introduction to Modeling and Analysis of Dynamic Systems (4)** Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, five hours. Enforced requisites: courses M20 (or Computer Science 31), 82, Electrical Engineering 100. Introduction to modeling of physical systems, with examples of mechanical, fluid, thermal, and electrical systems. Description of these systems with coverage of impulse response, convolution, frequency response, first- and second-order system transient response analysis, and numerical solution. Nonlinear differential equation descriptions with discussion of equilibrium solutions, small signal linearization, large signal response. Block diagram representation and response of interconnections of systems. Hands-on experiments reinforce lecture material. Letter grading.

**131A. Intermediate Heat Transfer (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Civil Engineering M20 or Computer Science 31), 82, 105D. Steady conduction: two-sided, two-ended, tapered, and circular fins; buried cylinders, thick fins. Transient conduction: slabs, cylinders, products. Convection: transpiration, laminar pipe flow, film condensation, boundary layers, dimensional analysis, working correlation, surface radiation. Two-stream heat exchangers. Elements of thermal design. Letter grading.

**C131G. Microscopic Energy Transport (4)** Lecture, four hours; outside study, eight hours. Requisite: course 105D. Exploration of basic principles of transportation of energy in natural and fabricated structures by three carriers: electrons, phonons, and molecules. Study of statistical properties of heat carriers, common Landauer framework for heat flow, scattering and propagation of heat carriers, derivation of classical laws from microscopic transport equations, and deviation from classical laws at small scale. Concurrently scheduled with course C231G. Letter grading.

**133A. Engineering Thermodynamics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 105A. Applications of thermodynamic principles to engineering processes. Energy conversion systems. Rankine cycle and other cycles, refrigeration, psychrometry, reactive and nonreactive fluid flow systems. Elements of thermodynamic design. Letter grading.

**135. Fundamentals of Nuclear Science and Engineering (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 82, Chemistry 20A. Review of nuclear physics, radioactivity and decay, and radiation interaction with matter. Nuclear fission and fusion processes and mass defect, chain reactions, criticality, neutron diffusion and multiplication, heat transfer issues, and applications. Introduction to nuclear power plants for commercial electricity production, space power, spacecraft propulsion, nuclear fusion, and nuclear science for medical uses. Letter grading.

**C136. Energy and Environment (4)** (Formerly numbered 136.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisite: course 105A or equivalent. Global energy use and supply, electrical power generation, fossil fuel and nuclear power plants, renewable energy such as hydropower, biomass, geothermal, solar, wind, and ocean, fuel cells, transportation, energy conservation, air and water pollution, global warming. Concurrently scheduled with course C236. Letter grading.

**C137. Design and Analysis of Smart Grids (4)** Lecture, four hours; outside study, eight hours. Demand response; transactive/price-based load control; home-area network, smart energy profile; advanced metering infrastructure; renewable energy integration; solar and wind generation intermittency and correction; microgrids; grid stability; energy storage and electric vehicles-simulation; monitoring; distribution and transmission grids; consumer-centric technologies; sensors, communications, and computing; wireless, wireline, and powerline communications for smart grids; grid modeling, stability, and control; frequency and voltage regulation; ancillary services; wide-area situational awareness, phasor measurements; analytical methods and tools for monitoring and control. Concurrently scheduled with course C237. Letter grading.

**C138. Introduction to Statistical Thermodynamics (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 105A, 105D. Introduction to basic concepts and tools of statistical thermodynamics. Abstract concepts of

entropy, temperature, and chemical potential are explained by developing these concepts from ground up using only mechanical and statistical principles. Discussion of equilibrium properties of thermodynamic systems and associated distributions. Provides sound foundation for further studies in transport phenomena, plasma, chemical kinetics, micro/nanoscale science and technology, and other related subjects. Concurrently scheduled with course C238. Letter grading.

**CM140. Introduction to Biomechanics (4)** (Same as Bioengineering CM140.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM240. Letter grading.

**150A. Intermediate Fluid Mechanics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 82, 103. Basic equations governing fluid motion. Fundamental solutions of Navier-Stokes equations. Lubrication theory. Elementary potential flow theory. Boundary layers. Turbulent flow in pipes and boundary layers. Compressible flow: normal shocks, channel flow with friction or heat addition. Letter grading.

**150B. Aerodynamics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 150A. Advanced aspects of potential flow theory. Incompressible flow around thin airfoils (lift and moment coefficients) and wings (lift, induced drag). Gas dynamics: oblique shocks, Prandtl/Meyer expansion. Linearized subsonic and supersonic flow around thin airfoils and wings. Wave drag. Transonic flow. Letter grading.

**150C. Combustion Systems (4)** Lecture, four hours; outside study, eight hours. Enforced requisites: courses 103, 105A. Chemical thermodynamics of ideal gas mixtures, premixed and diffusion flames, explosions and detonations, combustion chemistry, high explosives. Combustion processes in rocket, turbine, and internal combustion engines; heating applications. Letter grading.

**C150G. Fluid Dynamics of Biological Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 103. Mechanics of aquatic locomotion; insect and bird flight aerodynamics; pulsatile flow in circulatory system; rheology of blood; transport in microcirculation; role of fluid dynamics in arterial diseases. Concurrently scheduled with course C250G. Letter grading.

**C150P. Aircraft Propulsion Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 105A, 150A. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics. Concurrently scheduled with course C250P. Letter grading.

**C150R. Rocket Propulsion Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 103, 105A. Rocket propulsion concepts, including chemical rockets (liquid, gas, and solid propellants), hybrid rocket engines, electric (ion, plasma) rockets, nuclear rockets, and solar-powered vehicles. Current issues in launch vehicle technologies. Concurrently scheduled with course C250R. Letter grading.

**154A. Preliminary Design of Aircraft (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 154S. Classical preliminary design of aircraft, including weight estimation, performance and stability, and control consideration. Term assignment consists of preliminary design of low-speed aircraft. Letter grading.

**154B. Design of Aerospace Structures (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 154A, 166A. Design of aircraft, helicopter, spacecraft, and related structures. External loads, internal stresses. Applied theory of thin-walled structures. Material selection, design using composite materials. Design for fatigue prevention and structural optimization. Field trips to aerospace companies. Letter grading.

**154S. Flight Mechanics, Stability, and Control of Aircraft (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 150A, 150B. Aircraft performance, flight mechanics, stability, and control; some basic ingredients needed for design of aircraft. Effects of airplane flexibility on stability derivatives. Letter grading.

**155. Intermediate Dynamics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 102. Axioms of Newtonian mechanics, generalized coordinates, Lagrange equation, variational principles; central force motion; kinematics and dynamics of rigid bodies. Euler equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations. Letter grading.

**156A. Advanced Strength of Materials (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 82, 101. Not open to students with credit for course 166A. Concepts of stress, strain, and material behavior. Stresses in loaded beams with symmetric and asymmetric cross sec-

tions. Torsion of cylinders and thin-walled structures, shear flow. Stresses in pressure vessels, press-fit and shrink-fit problems, rotating shafts. Curved beams. Contact stresses. Strength and failure, plastic deformation, fatigue, elastic instability. Letter grading.

**C156B. Mechanical Design for Power Transmission (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Material selection in mechanical design. Load and stress analysis. Deflection and stiffness. Failure due to static loading. Fatigue failure. Design for safety factors and reliability. Applications of failure prevention in design of power transmission shafting. Design project involving computer-aided design (CAD) and finite element analysis (FEA) modeling. Concurrently scheduled with course C296A. Letter grading.

**157. Basic Mechanical and Aerospace Engineering Laboratory (4)** Laboratory, eight hours; outside study, four hours. Requisites: courses 101, 102, 103, 105A, 105D, Electrical and Computer Engineering 100. Methods of measurement of basic quantities and performance of basic experiments in fluid mechanics, structures, and thermodynamics. Primary sensors, transducers, recording equipment, signal processing, and data analysis. Letter grading.

**157A. Aerospace Design Laboratory (4)** Lecture, two hours; laboratory, six hours; outside study, four hours. Requisites: courses 150A, 157. Recommended: 150B, C150R. Experimental illustration of important physical phenomena in area of fluid mechanics/aerodynamics, as well as hands-on experience with design of experimental programs and use of modern experimental tools and techniques in field. Letter grading.

**157W. Basic Mechanical and Aerospace Engineering Laboratory with Writing (6)** Laboratory, eight hours; outside study, ten hours. Requisites: courses 101, 102, 103, 105A, 105D, Electrical Engineering 100. Not open for credit to students with credit for course 157. Engineering measurements and analysis in fluid mechanics, solid mechanics, thermodynamics, and heat transfer. Primary sensors, transducers, recording equipment, signal processing, and data analysis. Replicates communication processes that students can expect in engineering careers. Satisfies Writing II requirement. Letter grading.

**161A. Introduction to Astronautics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 102. Recommended: course 82. Spaceflight, including two-body and three-body problem, Kepler laws, and Keplerian orbits. Ground track and taxonomy of common orbits. Orbital and transfer maneuvers, patched conics, perturbation theory, low-thrust trajectories, spacecraft pointing, and spacecraft attitude control. Space mission design, space environment, rendezvous, reentry, and launch. Letter grading.

**161B. Introduction to Space Technology (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended preparation: courses 102, 161A. Spacecraft systems and dynamics, including spacecraft power, instruments, communications, structures, materials, thermal control, and attitude/orbit determination and control. Space mission design, launch vehicles/considerations, space propulsion. Letter grading.

**161C. Spacecraft Design (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 161B. Preliminary design and analysis by students of Earth-orbiting or interplanetary space missions and spacecraft. Students work in groups of three or four, with each student responsible primarily for one subsystem and for integration with whole. Letter grading.

**162A. Introduction to Mechanisms and Mechanical Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses M20 (or Computer Science 31), 102. Analysis and synthesis of mechanisms and mechanical systems. Kinematics, dynamics, and mechanical advantages of machinery. Displacement velocity and acceleration analyses of linkages. Fundamental law of gearing and various gear trains. Computer-aided mechanism design and analysis. Letter grading.

**C162B. Compliant Mechanism Design (4)** Lecture, four hours; outside study, eight hours. Requisite: linear algebra. Advanced compliant mechanism synthesis approaches, modeling techniques, and optimization tools. Fundamentals of flexible constraint theory, principles of constraint-based design, projective geometry, screw theory kinematics, and freedom and constraint topologies. Applications: precision motion stages, general purpose flexure bearings, microstructural architectures, MEMS, optical mounts, and nanoscale positioning systems. Hands-on exercises include build-your-own flexure kits, CAD and FEA simulations, and term project. Concurrently scheduled with course C294A. Letter grading.

**162D. Mechanical Engineering Design I (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisites: courses 94, 156A (or 183A or M183B), 162A (or 171A). Limited to seniors. First of two mechanical engineering capstone design courses. Lectures on engineering project management, design of thermal systems, mechatronics, mechanical systems, and

mechanical components. Students work in teams to begin their two-term design project. Laboratory modules include CAD design, CAD analysis, mechatronics, and conceptual design for team project. Letter grading.

**162E. Mechanical Engineering Design II (4)** Lecture, two hours; laboratory, four hours; outside study, six hours. Enforced requisite: course 162D. Limited to seniors. Second of two mechanical engineering capstone design courses. Student groups continue design projects started in course 162D, making use of CAD design laboratory, CAD analysis laboratory, and mechatronics laboratory. Design theory, design tools, economics, marketing, manufacturability, quality, intellectual property, design for manufacture and assembly, design for safety and reliability, and engineering ethics. Students conduct hands-on design, fabrication, and testing. Culminating project demonstrations or competition. Preparation of design project presentations in both oral and written formats. Letter grading.

**C163A. Kinematics of Robotic Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisites: courses 155, 171A. Kinematical models of serial robotic manipulators, including spatial descriptions and transformations (Euler angles, Denavit-Hartenberg/DH parameters, equivalent angle vector), frame assignment procedure, direct kinematics, inverse kinematics (geometric and algebraic approaches), mechanical design topics. Concurrently scheduled with course C263A. Letter grading.

**C163B. Dynamics of Robotic Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course C163A. Dynamics models of serial and parallel robotic manipulators, including review of spatial descriptions and transformations along with direct and inverse kinematics, linear and angular velocities, Jacobian matrix (velocity and force), velocity propagation method, force propagation method, explicit formulation of Jacobian matrix, manipulator dynamics (Newton/Euler formulation, Lagrangian formulation), trajectory generation, introduction to parallel manipulators. Concurrently scheduled with course C263B. Letter grading.

**C163C. Control of Robotic Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course C163B. Sensors, actuators, and control schemes for robotic systems, including computed torque control, linear feedback control, impedance and force feedback control, and advanced control topics from nonlinear and adaptive control, hybrid control, nonholonomic systems, vision-based control, and perception. Concurrently scheduled with course C263C. Letter grading.

**166A. Analysis of Aerospace Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 82, 101. Not open to students with credit for course 156A. Introduction to two-dimensional elasticity, stress-strain laws, yield and fatigue; bending of beams; torsion of beams; warping; torsion of thin-walled cross sections: shear flow, shear-lag; combined bending torsion of thin-walled, stiffened structures used in aerospace vehicles; elements of plate theory; buckling of columns. Letter grading.

**166C. Design of Composite Structures (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 156A or 166A. History of composites, stress-strain relations for composite materials, bending and extension of symmetric laminates, failure analysis, design examples and design studies, buckling of composite components, nonsymmetric laminates, micromechanics of composites. Letter grading.

**168. Introduction to Finite Element Methods (4)** (Same as Civil Engineering M135C.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 156A or 166A or Civil Engineering 130. Introduction to basic concepts of finite element methods (FEM) and applications to structural and solid mechanics and heat transfer. Direct matrix structural analysis; weighted residual, least squares, and Ritz approximation methods; shape functions; convergence properties; isoparametric formulation of multidimensional heat flow and elasticity; numerical integration. Practical use of FEM software; geometric and analytical modeling; preprocessing and postprocessing techniques; term projects with computers. Letter grading.

**169A. Introduction to Mechanical Vibrations (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 102, 107. Fundamentals of vibration theory and applications. Free, forced, and transient vibration of one and two degrees of freedom systems, including damping. Normal modes, coupling, and normal coordinates. Vibration isolation devices, vibrations of continuous systems. Letter grading.

**171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 107. Introduction to feedback principles, control systems design, and system stability. Modeling of physical systems in engineering and other fields; transform methods; controller design using Nyquist, Bode, and root locus methods; compensation; computer-aided analysis and design. Letter grading.

**171B. Digital Control of Physical Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 171A or Electrical Engineering 141. Analysis and design of digital control systems. Sampling theory. Z-transformation. Discrete-time system representation. Design using classical methods: performance specifications, root locus, frequency response, loop-shaping compensation. Design using state-space methods: state feedback, state estimator, state estimator feedback control. Simulation of sampled data systems and practical aspects: roundoff errors, sampling rate selection, computation delay. Letter grading.

**172. Control System Design Laboratory (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 171A. Introduction to loop shaping controller design with application to laboratory electromechanical systems. Power spectrum models of noise and disturbances, and performance trade-offs imposed by conflicting requirements. Constraints on sensitivity function and complementary sensitivity function imposed by nonminimum phase plants. Lecture topics supported by weekly hands-on laboratory work. Letter grading.

**174. Probability and Its Applications to Risk, Reliability, and Quality Control (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 33A. Introduction to probability theory; random variables, distributions, functions of random variables, models of failure of components, reliability, redundancy, complex systems, stress-strength models, fault tree analysis, statistical quality control by variables and by attributes, acceptance sampling. Letter grading.

**C175A. Probability and Stochastic Processes in Dynamical Systems (4)** Lecture, four hours; outside study, eight hours. Enforced requisites: courses 82, 107. Probability spaces, random variables, stochastic sequences and processes, expectation, conditional expectation, Gauss/Markov sequences, and minimum variance estimator (Kalman filter) with applications. Concurrently scheduled with course C271A. Letter grading.

**181A. Complex Analysis and Integral Transforms (4)** Lecture, four hours; outside study, eight hours. Enforced requisite: course 82. Complex variables, analytic functions, conformal mapping, contour integrals, singularities, residues, Cauchy integrals; Laplace transform: properties, convolution, inversion; Fourier transform: properties, convolution, FFT, applications in dynamics, vibrations, structures, and heat conduction. Letter grading.

**182B. Mathematics of Engineering (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 82. Analytical methods for solving partial differential equations arising in engineering. Separation of variables, eigenvalue problems, Sturm/Liouville theory. Development and use of special functions. Representation by means of orthonormal functions; Galerkin method. Use of Green's function and transform methods. Letter grading.

**182C. Numerical Methods for Engineering Applications (4)** Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses M20 (or Civil Engineering M20 or Computer Science 31), 82. Basic topics from numerical analysis having wide application in solution of practical engineering problems, computer arithmetic, and errors. Solution of linear and nonlinear systems. Algebraic eigenvalue problem. Least-square methods, numerical quadrature, and finite difference approximations. Numerical solution of initial and boundary value problems for ordinary and partial differential equations. Letter grading.

**183A. Introduction to Manufacturing Processes (4)** Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisite: Materials Science 104. Manufacturing fundamentals. Materials in manufacturing. Solidification processes. Metal forming processes. Material removal processes. Welding/joining. Rapid prototyping. Electronics manufacturing. Microelectromechanical systems (MEMS) and nanotechnology. Letter grading.

**183B. Introduction to Microscale and Nanoscale Manufacturing (4)** (Same as Bioengineering M153, Chemical Engineering M153, and Electrical and Computer Engineering M153.) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisites: Chemistry 20A, Physics 1A, 1B, 1C, 4AL. Introduction to general manufacturing methods, mechanisms, constraints, and microfabrication and nanofabrication. Focus on concepts, physics, and instruments of various microfabrication and nanofabrication techniques that have been broadly applied in industry and academia, including various photolithography technologies, physical and chemical deposition methods, and physical and chemical etching methods. Hands-on experience for fabricating microstructures and nanostructures in modern clean-room environment. Letter grading.

**C183C. Rapid Prototyping and Manufacturing (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Enforced requisite: course 183A. Rapid prototyping (RP), solid freeform fabrication, or additive manufacturing has emerged as popular manufacturing technology to accelerate product creation in last two decades. Machine for layered manufacturing builds parts di-



rectly from CAD models. This novel manufacturing technology enables building of parts that have traditionally been impossible to fabricate because of their complex shapes or of variety in materials. In analogy to speed and flexibility of desktop publishing, rapid prototyping is also called desktop manufacturing, with actual three-dimensional solid objects instead of mere two-dimensional images. Methodology of rapid prototyping has also been extended into meso-/micro-/nano-scale to produce three-dimensional functional miniature components. Concurrently scheduled with course C297A. Letter grading.

**185. Introduction to Radio Frequency Identification and Its Application in Manufacturing and Supply Chain (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisite: course M20 or Civil Engineering M20 or Computer Science 31. Manufacturing today requires assembling of individual components into assembled products, shipping of such products, and eventually use, maintenance, and recycling of such products. Radio frequency identification (RFID) chips installed on components, subassemblies, and assemblies of products allow them to be tracked automatically as they move and transform through manufacturing supply chain. RFID tags have memory and small CPU that allows information about product status to be written, stored, and transmitted wirelessly. Tag data can then be forwarded by reader to enterprise software by way of RFID middleware layer. Study of how RFID is being utilized in manufacturing, with focus on automotive and aerospace. Letter grading.

**C186. Applied Optics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Fundamental principles of optical systems. Geometric optics and aberration theory. Diffraction and interference. Fourier optics, beam optics. Propagation of light, Snell's law, and Huygen principle. Refraction and reflection. Plane waves, spherical waves, and image formation. Total internal reflection. Polarization, polarizers, and wave-plates. Lenses and aberrations, lens laws and formation of images, resolution and primary aberrations. Simple optical instruments, still cameras, shutters, apertures. Design of telescopes, microscope design, projection system design. Interference, Young's slit experiment and fringe visibility, Michelson interferometer, multiple-beam interference and thin film coatings. Diffraction theory, Fraunhofer and Fresnel diffraction, Fresnel zone plate. Fiber optics, waveguides and modes, fiber coupling, types of fiber: single and multimode. Concurrently scheduled with course C286. Letter grading.

**C187L. Nanoscale Fabrication, Characterization, and Biodetection Laboratory (4)** Lecture, two hours; laboratory, three hours; outside study, seven hours. Multidisciplinary course that introduces laboratory techniques of nanoscale fabrication, characterization, and biodetection. Basic physical, chemical, and biological principles related to these techniques, top-down and bottom-up (self-assembly) nanofabrication, nanocharacterization (AEM, SEM, etc.), and optical and electrochemical biosensors. Students encouraged to create their own ideas in self-designed experiments. Concurrently scheduled with course C287L. Letter grading.

**188. Special Courses in Mechanical and Aerospace Engineering. (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Special topics in mechanical and aerospace engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**194. Research Group Seminars: Mechanical and Aerospace Engineering (2 to 4)** Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. Student presentation of projects in research specialty. May be repeated for credit. P/NP or letter grading.

**199. Directed Research in Mechanical and Aerospace Engineering (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

## Graduate

**231A. Convective Heat Transfer Theory (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 182B. Recommended: course 250A. Conservation equations for flow of real fluids. Analysis of heat transfer in laminar and turbulent, incompressible and compressible flows. Internal and external flows; free convection. Variable wall temperature; effects of variable fluid properties. Analogies among convective transfer processes. Letter grading.

**231B. Radiation Heat Transfer (4)** Lecture, four hours; outside study, eight hours. Requisite: course 105D. Radiative properties of materials and radiative energy transfer. Emphasis on fundamental concepts, including energy levels and electromagnetic waves as well as analytical methods for calculating radiative properties and radiation transfer in absorbing, emitting, and scattering media. Applications cover laser-material interactions in addition to traditional areas such as combustion and thermal insulation. Letter grading.

**231C. Phase Change Heat Transfer and Two-Phase Flow (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Two-phase flow, boiling, and condensation. Generalized constitutive equations for two-phase flow. Phenomenological theories of boiling and condensation, including forced flow effects. Letter grading.

**C231G. Microscopic Energy Transport (4)** Lecture, four hours; outside study, eight hours. Requisite: course 105D. Exploration of basic principles of transport of energy in natural and fabricated structures by three carriers: electrons, phonons, and molecules. Study of statistical properties of heat carriers, common Landauer framework for heat flow, scattering and propagation of heat carriers, derivation of classical laws from microscopic transport equations, and deviation from classical laws at small scale. Term project. Concurrently scheduled with course C131G. Letter grading.

**233. Nanoscience for Energy Technologies (4)** Lecture, four hours; outside study, eight hours. Introduction to fundamental principles of energy transport, conversion, and storage at nanoscale, and recent development for these energy technologies involving nanotechnology. Focus on basics of thermal science, solid state, quantum mechanics, electromagnetics, and statistical physics. Topic discussions given for examples that connect technological application, fundamental challenge, and scientific-solution-based nanotechnology to improve device performance and energy efficiency. Letter grading.

**235A. Nuclear Reactor Theory (4)** Lecture, four hours; outside study, eight hours. Underlying physics and mathematics of nuclear reactor (fission) core design. Diffusion theory, reactor kinetics, slowing down and thermalization, multigroup methods, introduction to transport theory. Letter grading.

**C236. Energy and Environment (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced prerequisite: course 105A or equivalent. Global energy use and supply, electrical power generation, fossil fuel and nuclear power plants, renewable energy such as hydropower, biomass, geothermal, solar, wind, and ocean, fuel cells, transportation, energy conservation, air and water pollution, global warming. Concurrently scheduled with course C136. Letter grading.

**C237. Design and Analysis of Smart Grids (4)** Lecture, four hours; outside study, eight hours. Demand response; transactive/price-based load control; home-area network, smart energy profile; advanced metering infrastructure; renewable energy integration; solar and wind generation intermittency and correction; microgrids; grid stability; energy storage and electric vehicles-simulation; monitoring; distribution and transmission grids; consumer-centric technologies; sensors, communications, and computing; wireless, wireline, and powerline communications for smart grids; grid modeling, stability, and control; frequency and voltage regulation; ancillary services; wide-area situational awareness, phasor measurements; analytical methods and tools for monitoring and control. Concurrently scheduled with course C137. Letter grading.

**237B. Fusion Plasma Physics and Analysis (4)** (Same as Electrical and Computer Engineering M287.) Lecture, four hours; outside study, eight hours. Fundamentals of plasmas at thermonuclear burning conditions. Fokker/Planck equation and applications to heating by neutral beams, RF, and fusion reaction products. Bremsstrahlung, synchrotron, and atomic radiation processes. Plasma surface interactions. Fluid description of burning plasma. Dynamics, stability, and control. Applications in tokamaks, tandem mirrors, and alternate concepts. Letter grading.

**237D. Fusion Engineering and Design (4)** Lecture, four hours; outside study, eight hours. Fusion reactions and fuel cycles. Principles of inertial and magnetic fusion. Plasma requirements for controlled fusion. Plasma-surface interactions. Fusion reactor concepts and technological components. Analysis and design of high heat flux components, energy conversion and tritium breeding components, radiation shielding, magnets, and heating. Letter grading.

**C238. Introduction to Statistical Thermodynamics (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 105A, 105D. Introduction to basic concepts and tools of statistical thermodynamics. Abstract concepts of entropy, temperature, and chemical potential are explained by developing these concepts from ground up using only mechanical and statistical principles. Discussion of equilibrium properties of thermodynamic systems and associated distributions. Provides sound foundation for further studies in transport phenomena, plasma, chemical kinetics, micro/nanoscale science and technology, and other related subjects. Concurrently scheduled with course C138. Letter grading.

**239B. Seminar: Current Topics in Transport Phenomena. (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Lectures, discussions, student presentations, and projects in areas of current interest in transport phenomena. May be repeated for credit. S/U grading.

**239F. Special Topics in Transport Phenomena. (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced and current study of one or more aspects of heat and mass transfer, such as turbulence, stability and transition, buoyancy effects, variational methods, and measurement techniques. May be repeated for credit with topic change. S/U grading.

**239G. Special Topics in Nuclear Engineering. (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced study in areas of current interest in nuclear engineering, such as reactor safety, risk-benefit trade-offs, nuclear materials, and reactor design. May be repeated for credit with topic change. S/U grading.

**239H. Special Topics in Fusion Physics, Engineering, and Technology (2 to 4)** Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced treatment of subjects selected from research areas in fusion science and engineering, such as instabilities in burning plasmas, alternate fusion confinement concepts, inertial confinement fusion, fission-fusion hybrid systems, and fusion reactor safety. May be repeated for credit with topic change. S/U grading.

**CM240. Introduction to Biomechanics (4)** (Same as Bioengineering CM240.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 102, and 156A or 166A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM140. Letter grading.

**242. Introduction to Multiferroic Materials (4)** Lecture, four hours; outside study, eight hours. Overview of different types of multiferroic materials, including strain mediated. Basic crystal structure of single-phase multiferroics, as well as fundamental physics underlying ferroelectricity and ferromagnetism. Material science description of these materials, with focus on linear and nonlinear behavior with associated mechanisms such as spin reorientation. Presentation of analytical tools necessary to predict material response ranging from constitutive relations to governing equations, including elastodynamics and Maxwell's. Analytical and physical descriptions used to explain several devices manufactured with multiferroics, including magnetometers, memory devices, motors, and antennas. Letter grading.

**250A. Foundations of Fluid Dynamics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Corequisite: course 182B. Development and application of fundamental principles of fluid mechanics at graduate level, with emphasis on incompressible flow. Flow kinematics, basic equations, constitutive relations, exact solutions on the Navier-Stokes equations, vorticity dynamics, decomposition of flow fields, potential flow. Letter grading.

**250B. Viscous and Turbulent Flows (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Fundamental principles of fluid dynamics applied to study of fluid resistance. States of fluid motion discussed in order of advancing Reynolds number; wakes, boundary layers, instability, transition, and turbulent shear flows. Letter grading.

**250C. Compressible Flows (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B. Effects of compressibility in viscous and inviscid flows. Steady and unsteady inviscid subsonic and supersonic flows; method of characteristics; small disturbance theories (linearized and hypersonic); shock dynamics. Letter grading.

**250D. Computational Fluid Dynamics for Compressible Flows (4)** Lecture, eight hours; outside study four hours. Requisites: courses 150A, 150B, 182C. Introduction to useful methods for computation of aerodynamic flow fields. Coverage of potential, Euler, and Navier-Stokes equations for subsonic to hypersonic speeds. Letter grading.

**250E. Spectral Methods in Fluid Dynamics (4)** Lecture, four hours; outside study, eight hours. Enforced requisites: courses 82, 182B, 182C, 250A, 250B. Introduction to basic concepts and techniques of various spectral methods applied to solving partial differential equations. Particular emphasis on techniques of solving unsteady three-dimensional Navier-Stokes equations. Topics include spectral representation of functions, discrete Fourier transform, etc. Letter grading.

**250F. Hypersonic and High-Temperature Gas Dynamics (4)** Lecture, four hours; outside study, eight hours. Recommended requisite: course 250C. Molecular and chemical description of equilibrium and nonequilibrium hypersonic and high-temperature gas flows, chemical thermodynamics and statistical thermodynamics for calculation gas properties, equilibrium flows of real gases, vibrational and chemical rate processes, nonequilibrium flows of real gases, and computational fluid dynamics methods for nonequilibrium hypersonic flows. Letter grading.

**C250G. Fluid Dynamics of Biological Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 103. Mechanics of aquatic locomotion; insect and bird flight aerodynamics; pulsatile flow in circulatory system; rheology of blood; transport in microcirculation; role of fluid dynamics in arterial diseases. Concurrently scheduled with course C150G. Letter grading.

**250H. Computational Fluid Dynamics for Incompressible Flows (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 182C. Review of equations of incompressible flow, finite difference methods and other methods of spatial approximation, time-marching schemes, numerical solution of model partial differential equations, application to Navier-Stokes equations, boundary conditions. Letter grading.

**250M. Introduction to Microfluids/Nanofluids (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Introduction to fundamentals of microfluids. No-slip and slip boundary conditions. Sedimentation and diffusion in liquids. Osmotic pressure and Donnan equilibrium in fluid mixtures. Fundamentals of surface phenomena, spreading, and contact angles. Introduction to van der Waals interactions, electrical double layer, and zeta potential. Basics of non-Newtonian fluid mechanics. Letter grading.

**C250P. Aircraft Propulsion Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 105A, 150A. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics. Concurrently scheduled with course C150P. Letter grading.

**C250R. Rocket Propulsion Systems (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 103, 105A. Rocket propulsion concepts, including chemical rockets (liquid, gas, and solid propellants), hybrid rocket engines, electric (ion, plasma) rockets, nuclear rockets, and solar-powered vehicles. Current issues in launch vehicle technologies. Concurrently scheduled with course C150R. Letter grading.

**250S. Spectroscopy and Molecular Gas Dynamics (4)** Lecture, four hours; outside study, eight hours. Introduction to science that governs interaction of light and matter (in gas phase). Review of key concepts of physical gas dynamics to establish microscopic or molecular perspective (non-continuum perspective) on gas properties and physical behavior. Material is structured within three subtopics of gas-phase spectroscopy: spectral line positions, spectral line intensities, and spectral line shapes. These capture spectroscopic interactions of atoms, diatomic molecules, and polyatomic molecules, and their respective rotational (THz), vibrational (IR), and electronic (UV/Vis) spectra. Presentation of absorption, emission, and scattering processes, associated optical measurement techniques. Integration of subject matter from physical sciences (quantum mechanics, statistical thermodynamics, and physical chemistry), covered at level appropriate for engineer. Letter grading.

**252A. Stability of Fluid Motion (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Mechanisms by which laminar flows can become unstable and lead to turbulence of secondary motions. Linear stability theory; thermal, centrifugal, and shear instabilities; boundary layer instability. Nonlinear aspects: sufficient criteria for stability, subcritical instabilities, supercritical states, transition to turbulence. Letter grading.

**252B. Turbulence (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B. Characteristics of turbulent flows, conservation and transport equations, statistical description of turbulent flows, scales of turbulent motion, simple turbulent flows, free-shear flows, wall-bounded flows, turbulence modeling, numerical simulations of turbulent flows, and turbulence control. Letter grading.

**252C. Fluid Mechanics of Combustion Systems (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B. Recommended: course 250C. Review of fluid mechanics and chemical thermodynamics applied to reactive systems, laminar diffusion flames, premixed laminar flames, stability, ignition, turbulent combustion, supersonic combustion. Letter grading.

**252E. Data Science for Fluid Dynamics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 150A. Data-driven analysis, modeling, and control of fluid flows using modern linear algebra, modal analysis, reduced-order modeling, clustering, network science, and machine learning. Emphasis on extracting physical characteristics and insights from fluid flow data. Letter grading.

**252P. Plasma and Ionized Gases (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 82, 102, 150A, 182B. Neutral and charged particle motion, magnetohydrodynamics, two-fluid plasma treatments, ion and electron diffusion, gas diffusion, Child/Langmuir law, basic plasma devices, electron emission and work function, thermal distributions, vacuum and vacuum systems, space-charge, particle collisions and ionization, plasma discharges, sheaths, and electric arcs. Letter grading.

**255A. Advanced Dynamics (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 155, 169A. Variational principles and Lagrange equations. Kinematics and dynamics of rigid bodies; precession and nutation of spinning bodies. Letter grading.

**255B. Mathematical Methods in Dynamics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 255A. Concepts of stability; state-space interpretation; stability determination by simulation, linearization, and Lyapunov direct method; the Hamiltonian as a Lyapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems. Letter grading.

**256A. Linear Elasticity (4)** (Same as Civil Engineering M230A.) Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Linear elastostatics. Cartesian tensors; infinitesimal strain tensor; Cauchy stress tensor; strain energy; equilibrium equations; linear constitutive relations; plane elastostatic problems, holes, corners, inclusions, cracks; three-dimensional problems of Kelvin, Boussinesq, and Cerruti. Introduction to boundary integral equation method. Letter grading.

**256B. Nonlinear Elasticity (4)** (Same as Civil Engineering M230B.) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Kinematics of deformation, material and spatial coordinates, deformation gradient tensor, nonlinear and linear strain tensors, strain displacement relations; balance laws, Cauchy and Piola stresses, Cauchy equations of motion, balance of energy, stored energy; constitutive relations, elasticity, hyperelasticity, thermoelasticity; linearization of field equations; solution of selected problems. Letter grading.

**256C. Plasticity (4)** (Same as Civil Engineering M230C.) Lecture, four hours; outside study, eight hours. Requisites: courses M256A, M256B. Classical rate-independent plasticity theory, yield functions, flow rules and thermodynamics. Classical rate-dependent viscoplasticity, Perzyna and Duvant/Lions types of viscoplasticity. Thermoplasticity and creep. Return mapping algorithms for plasticity and viscoplasticity. Finite element implementations. Letter grading.

**256F. Analytical Fracture Mechanics (4)** Lecture, four hours; outside study, eight hours. Requisite: course M256A. Review of modern fracture mechanics, elementary stress analyses; analytical and numerical methods for calculation of crack tip stress intensity factors; engineering applications in stiffened structures, pressure vessels, plates, and shells. Letter grading.

**257A. Elastodynamics (4)** (Same as Earth, Planetary, and Space Sciences M224A.) Lecture, four hours; outside study, eight hours. Requisites: courses M256A, M256B. Equations of linear elasticity, Cauchy equation of motion, constitutive relations, boundary and initial conditions, principle of energy. Sources and waves in unbounded isotropic, anisotropic, and dissipative solids. Half-space problems. Guided waves in layered media. Applications to dynamic fracture, nondestructive evaluation (NDE), and mechanics of earthquakes. Letter grading.

**258A. Nanomechanics and Micromechanics (4)** Lecture, four hours; outside study, eight hours. Requisite: course M256A. Analytical and computational modeling methods to describe mechanics of materials at scales ranging from atomistic through microstructure or transitional and up to continuum. Discussion

of atomistic simulation methods (e.g., molecular dynamics, Langevin dynamics, and kinetic Monte Carlo) and their applications at nanoscale. Developments and applications of dislocation dynamics and statistical mechanics methods in areas of nanostructure and microstructure self-organization, heterogeneous plastic deformation, material instabilities, and failure phenomena. Presentation of technical applications of these emerging modeling techniques to surfaces and interfaces, grain boundaries, dislocations and defects, surface growth, quantum dots, nanotubes, nanoclusters, thin films (e.g., optical thermal barrier coatings and ultrastrong nanolayer materials), nano-identification, smart (active) materials, nanobending and microbending, and torsion. Letter grading.

**259A. Seminar: Advanced Topics in Fluid Mechanics (4)** Seminar, four hours; outside study, eight hours. Advanced study of topics in fluid mechanics, with intensive student participation involving assignments in research problems leading to term paper or oral presentation (possible help from guest lecturers). Letter grading.

**259B. Seminar: Advanced Topics in Solid Mechanics (4)** Seminar, four hours; outside study, eight hours. Advanced study in various fields of solid mechanics on topics which may vary from term to term. Topics include dynamics, elasticity, plasticity, and stability of solids. Letter grading.

**260. Current Topics in Mechanical Engineering. (2 to 4)** Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Lectures, discussions, and student presentations and projects in areas of current interest in mechanical engineering. May be repeated for credit. S/U grading.

**261A. Energy and Computational Methods in Structural Mechanics (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Review of theory of linear elasticity and reduced structural theories (rods, plates, and shells). Calculus of variations. Virtual work. Minimum and stationary variational principles. Variational approximation methods. Weighted residual methods, weak forms. Static finite element method. Isoparametric elements, beam and plate elements. Numerical quadrature. Letter grading.

**261B. Finite Element Analysis for Solids and Structures (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156A or M256A, or consent of instructor. Strongly recommended requisites: courses M168, M256B, 261A. Application of finite element method to classical and state-of-art modeling and design problems for solids and structures. Introduction of commercial mainstream finite element program—ABAQUS—and demonstration of how to use it in advanced way. Topics include review of finite element method, static and dynamic linear elasticity, finite deformation of hyperelastic materials, instability analysis, fracture, and implementation of user-defined subroutines in ABAQUS. Term projects using computers. Letter grading.

**262. Mechanics of Intelligent Material Systems (4)** Lecture, four hours; outside study, eight hours. Recommended requisite: course 166C. Constitutive relations for electro-magneto-mechanical materials. Fiber-optic sensor technology. Micro/macro analysis, including classical lamination theory, shear lag theory, concentric cylinder analysis, hexagonal models, and homogenization techniques as they apply to active materials. Active systems design, inchworm, and bimorph. Letter grading.

**C263A. Kinematics of Robotic Systems (4)** (Formerly numbered 263A.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisites: courses 155, 171A. Kinematical models of serial robotic manipulators, including spatial descriptions and transformations (Euler angles, Denavit-Hartenberg/DH parameters, equivalent angle vector), frame assignment procedure, direct kinematics, inverse kinematics (geometric and algebraic approaches), mechanical design topics. Concurrently scheduled with course C163A. Letter grading.

**C263B. Dynamics of Robotic Systems (4)** (Formerly numbered 263B.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course C263A. Recommended: course 255B. Dynamics models of serial and parallel robotic manipulators, including review of spatial descriptions and transformations along with direct and inverse kinematics, linear and angular velocities, Jacobian matrix (velocity and force), velocity propagation method, force propagation method, explicit formulation of Jacobian matrix, manipulator dynamics (Newton/Euler formulation, Lagrangian formulation), trajectory generation, introduction to parallel manipulators. Concurrently scheduled with course C163B. Letter grading.

**C263C. Control of Robotic Systems (4)** (Formerly numbered 263C.) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course C263B. Sensors, actuators, and control schemes for robotic systems, including computed torque control, linear feedback control, impedance and force feedback control, and advanced control topics from nonlinear and adaptive control, hybrid control, nonholonomic systems, vision-based control, and perception. Concurrently scheduled with course C163C. Letter grading.

**263D. Advanced Topics in Robotics and Control (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 263C. Current and advanced topics in robotics and control, including kinematics, dynamics, control, mechanical design, advanced sensors and actuators, flexible links, manipulability, redundant manipulators, human-robot interaction, teleoperation, haptics. Letter grading.

**263E. Bionic Systems Engineering (4)** Lecture, four hours; outside study, eight hours. Requisites: courses M20, 82, or equivalent. Introduction to design principles for bionic systems, including wearable robotics and implantable devices. Neural control of movement, neuromusculoskeletal modeling, actuator design, sensor integration, robotic control, neural interfacing, surgical techniques for amputation, and fundamentals of orthopaedic implants. Letter grading.

**263F. Mechanics of Flexible Structures and Soft Robots (4)** Lecture, four hours; outside study, eight hours. Preparation: programming experience. Applied introduction to mechanics and modeling of rods, plates, shells, and robots. Rod and shell-like structures appear across wide range of length-scale from carbon nanotubes at microscale to undersea cables at kilometer-scale. Covers algorithms for numerical simulation of such structures, inspired by recent advances in field of computer graphics and machine learning. Specifically, discrete differential geometry and neural ordinary differential equations are used for modeling of highly deformable structures. Such simulations are widely used in movies and video games for animation of hair and clothes. Final project involves design and simulation of soft robot (or any other complex structure agreed upon by instructor and student). Topics include elastic stress-strain relations for rod, plate, and shell elements; equations of equilibrium; discrete differential geometry-based numerical simulation; neural ordinary differential equations. Letter grading.

**269A. Dynamics of Structures (4)** (Same as Civil Engineering M237A.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Civil Engineering 135A, C137, or equivalent. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady-state response. Emphasis on derivation and solution of governing equations using matrix formulation. Letter grading.

**269B. Advanced Dynamics of Structures (4)** Lecture, four hours; outside study, eight hours. Requisite: course M269A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations. Letter grading.

**269D. Aeroelastic Effects in Structures (4)** Lecture, four hours; outside study, eight hours. Requisite: course M269A. Presentation of field of aeroelasticity from unified viewpoint applicable to flight structures, suspension bridges, buildings, and other structures. Derivation of aeroelastic operators and unsteady airloads from governing variational principles. Flow induced instability and response of structural systems. Letter grading.

**270A. Linear Dynamic Systems (4)** (Same as Chemical Engineering M280A and Electrical and Computer Engineering M240A.) Lecture, four hours; outside study, eight hours. Requisite: course 171A or Electrical and Computer Engineering 141. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

**270B. Linear Optimal Control (4)** Lecture, four hours; outside study, eight hours. Requisite: course M270A or Electrical Engineering M240A. Existence and uniqueness of solutions to linear quadratic (LQ) optimal control problems for continuous-time and discrete-time systems, finite-time and infinite-time problems; Hamiltonian systems and optimal control; algebraic and differential Riccati equations; implications of controllability, stabilizability, observability, and detectability solutions. Letter grading.

**270C. Optimal Control (4)** (Same as Chemical Engineering M280C and Electrical and Computer Engineering M240C.) Lecture, four hours; outside study, eight hours. Requisite: course 270B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

**C271A. Probability and Stochastic Processes in Dynamical Systems (4)** Lecture, four hours; outside study, eight hours. Enforced requisites: courses 82, 107. Probability spaces, random variables, stochastic sequences and processes, expectation, conditional expectation, Gauss/Markov sequences, and minimum variance estimator (Kalman filter) with applications. Concurrently scheduled with course C175A. Letter grading.

**271B. Stochastic Estimation (4)** Lecture, four hours; outside study, eight hours. Enforced prerequisite: course C271A. Linear and nonlinear estimation theory, orthogonal projection lemma, Bayesian filtering theory, conditional mean and risk estimators. Letter grading.

**271C. Stochastic Optimal Control (4)** Lecture, four hours; outside study, eight hours. Requisite: course 271B. Stochastic dynamic programming, certainty equivalence principle, separation theorem, information statistics; linear-quadratic-Gaussian problem, linear-exponential-Gaussian problem. Relationship between stochastic control and robust control. Letter grading.

**271D. Seminar: Special Topics in Dynamic Systems Control (4)** Seminar, four hours; outside study, eight hours. Seminar on current research topics in dynamic systems modeling, control, and applications. Topics selected from process control, differential games, nonlinear estimation, adaptive filtering, industrial and aerospace applications, etc. Letter grading.

**272A. Nonlinear Dynamic Systems (4)** (Same as Chemical Engineering M282A and Electrical and Computer Engineering M242A.) Lecture, four hours; outside study, eight hours. Requisite: course M270A or Chemical Engineering M280A or Electrical and Computer Engineering M240A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

**273A. Robust Control System Analysis and Design (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 171A, M270A. Graduate-level introduction to analysis and design of multivariable control systems. Multivariable loop-shaping, performance requirements, model uncertainty representations, and robustness covered in detail from frequency domain perspective. Structured singular value and its application to controller synthesis. Letter grading.

**275A. System Identification (4)** Lecture, four hours; outside study, eight hours. Methods for identification of dynamical systems from input/output data, with emphasis on identification of discrete-time (digital) models of sampled-data systems. Coverage of conversion to continuous-time models. Models identified include transfer functions and state-space models. Discussion of applications in mechanical and aerospace engineering, including identification of flexible structures, microelectromechanical systems (MEMS) devices, and acoustic ducts. Letter grading.

**276. Dynamic Programming (4)** (Same as Electrical and Computer Engineering M237.) Lecture, four hours; outside study, eight hours. Recommended prerequisite: Electrical and Computer Engineering 232A or 236A or 236B. Introduction to mathematical analysis of sequential decision processes. Finite horizon model in both deterministic and stochastic cases. Finite-state infinite horizon model. Methods of solution. Examples from inventory theory, finance, optimal control and estimation, Markov decision processes, combinatorial optimization, communications. Letter grading.

**277. Advanced Digital Control for Mechatronic Systems (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 171B, M270A. Digital signal processing and control analysis of mechatronic systems. System inversion-based digital control algorithms and robustness properties, Youla parameterization of stabilizing controllers, previewed optimal feedforward compensator, repetitive and learning control, and adaptive control. Real-time control investigation of topics to selected mechatronic systems. Letter grading.

**279. Dynamics and Control of Biological Oscillations (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 107, M270A. Analysis and design of dynamical mechanisms underlying biological control systems that generate coordinated oscillations. Topics include neuronal information processing through action potentials (spike train), central pattern generator, coupled nonlinear oscillators, optimal gaits (periodic motion) for animal locomotion, and entrainment to natural oscillations via feedback control. Letter grading.

**279B. Dynamics and Feedback in Biological and Ecological Systems (4)** Lecture, four hours; outside study, eight hours. Requisite: course 171A or equivalent. Preparation: familiarity with differential equations (course 107 or Electrical and Computer Engineering 102). Covers mathematical modeling of biological and ecological systems using deterministic approaches. Derivation of kinetic models for control of gene expression, gene networks, cellular signaling, and viral infections. Nonlinear and linearized analysis of feedback mechanisms leading to oscillations and bistability. Modularity and robustness in interconnected networks in presence of parameter uncertainty and disturbances. Feedback engineering for setpoint regulation of cellular processes and bioproduction. Letter grading.

**280B. Microelectromechanical Systems (MEMS) Fabrication (4)** (Same as Bioengineering M250B and Electrical and Computer Engineering M250B.) Lecture, three hours; discussion, one hour; outside study, eight hours. En-

forced requisite: course M183B. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

**281. Microsciences (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 102, 103, 105D. Fundamental issues of being in microscopic world and mechanical engineering of microscale devices. Topics include scale issues, surface tension, superhydrophobic surfaces and applications, and electrowetting and applications. Letter grading.

**282. Microelectromechanical Systems (MEMS) Device Physics and Design (4)** (Same as Bioengineering M252 and Electrical and Computer Engineering M252.) Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

**284. Sensors, Actuators, and Signal Processing (4)** Lecture, four hours; outside study, eight hours. Principles and performance of micro transducers. Applications of using unique properties of micro transducers for distributed and real-time control of engineering problems. Associated signal processing requirements for these applications. Letter grading.

**285. Mechanics of Soft Matter (4)** Lecture, four hours; outside study, eight hours. Requisites: courses 82, 103, 105A, 105D. Introduction to fundamental physical phenomena occurring in soft matter systems, and application of their knowledge to engineering problems. Fundamental concepts of soft materials mechanics including interfacial thermodynamics, wetting, rheology, and emergent phenomena. Presentation of various canonical systems including colloidal suspension, polymer, emulsions, and biological tissue systems. Letter grading.

**C286. Applied Optics (4)** Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Fundamental principles of optical systems. Geometric optics and aberration theory. Diffraction and interference. Fourier optics, beam optics. Propagation of light, Snell's law, and Huygen principle. Refraction and reflection. Plane waves, spherical waves, and image formation. Total internal reflection. Polarization, polarizers, and wave-plates. Lenses and aberrations, lens laws and formation of images, resolution and primary aberrations. Simple optical instruments, still cameras, shutters, apertures. Design of telescopes, microscope design, projection system design. Interference, Young's slit experiment and fringe visibility, Michelson interferometer, multiple-beam interference and thin film coatings. Diffraction theory, Fraunhofer and Fresnel diffraction, Fresnel zone plate. Fiber optics, waveguides and modes, fiber coupling, types of fiber: single and multimode. Concurrently scheduled with course C186. Letter grading.

**287. Nanoscience and Technology (4)** (Same as Electrical and Computer Engineering M257.) Lecture, four hours; outside study, eight hours. Introduction to fundamentals of nanoscale science and technology. Basic physical principles, quantum mechanics, chemical bonding and nanostructures, top-down and bottom-up (self-assembly) nanofabrication; nanocharacterization; nanomaterials, nanoelectronics, and nanobiodetection technology. Introduction to new knowledge and techniques in nano areas to understand scientific principles behind nanotechnology and inspire students to create new ideas in multidisciplinary nano areas. Letter grading.

**C287L. Nanoscale Fabrication, Characterization, and Biodetection Laboratory (4)** Lecture, two hours; laboratory, three hours; outside study, seven hours. Multidisciplinary course that introduces laboratory techniques of nanoscale fabrication, characterization, and biodetection. Basic physical, chemical, and biological principles related to these techniques, top-down and bottom-up (self-assembly) nanofabrication, nanocharacterization (AEM, SEM, etc.), and optical and electrochemical biosensors. Students encouraged to create their own ideas in self-designed experiments. Concurrently scheduled with course C187L. Letter grading.

**C294A. Compliant Mechanism Design (4)** (Formerly numbered 294A.) Lecture, four hours; outside study, eight hours. Requisite: linear algebra. Advanced compliant mechanism synthesis approaches, modeling techniques, and optimization tools. Fundamentals of flexible constraint theory, principles of constraint-based design, projective geometry, screw theory kinematics, and freedom and constraint topologies. Applications: precision motion stages, general purpose flexure bearings, microstructural architectures, MEMs, optical mounts, and nanoscale positioning systems. Hands-on exercises include build-your-own flexure kits, CAD and FEA simulations, and term project. Concurrently scheduled with course C162B. Letter grading.

**295A. Radio Frequency Identification Systems: Analysis, Design, and Applications (4)** Lecture, four hours; outside study, eight hours. Designed for graduate engineering students. Examination of emerging discipline of radio frequency identification (RFID), including basics of RFID, how RFID systems function, design and analysis of RFID systems, and applications to fields such as supply chain, manufacturing, retail, and homeland security. Letter grading.

**C296A. Mechanical Design for Power Transmission (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Material selection in mechanical design. Load and stress analysis. Deflection and stiffness. Failure due to static loading. Fatigue failure. Design for safety factors and reliability. Applications of failure prevention in design of power transmission shafting. Design project involving computer-aided design (CAD) and finite element analysis (FEA) modeling. Concurrently scheduled with course C156B. Letter grading.

**296B. High-Temperature Mechanical Design (4)** Lecture, four hours; outside study, eight hours. Requisite: course 156A or equivalent. Review of elasticity and continuum thermodynamics, multiaxial plasticity, flow rules, cyclic plasticity, viscoplasticity, creep, creep damage in cyclic loading. Damage mechanics: thermodynamics, ductile, creep, fatigue, and fatigue-creep interaction damage. Fracture mechanics: elastic and elastoplastic analysis, J-integral, brittle fracture, ductile fracture, fatigue and creep crack propagation. Applications in design of high-temperature components such as turbine blades, pressure vessels, heat exchangers, connecting rods. Design project involving CAD and FEM modeling. Letter grading.

**C297A. Rapid Prototyping and Manufacturing (4)** Lecture, four hours; laboratory, two hours; outside study, six hours. Recommended requisite: level of knowledge in manufacturing equivalent to course 183A and CAD capability. Rapid prototyping (RP), solid freeform fabrication, or additive manufacturing has emerged as popular manufacturing technology to accelerate product creation in last two decades. Machine for layered manufacturing builds parts directly from CAD models. This novel manufacturing technology enables building of parts that have traditionally been impossible to fabricate because of their complex shapes or of variety in materials. In analogy to speed and flexibility of desktop publishing, rapid prototyping is also called desktop manufacturing, with actual three-dimensional solid objects instead of mere two-dimensional images. Methodology of rapid prototyping has also been extended into meso-/micro-/nano-scale to produce three-dimensional functional miniature components. Concurrently scheduled with course C183C. Letter grading.

**297B. Material Processing in Manufacturing (4)** (Same as Materials Science M297B.) Lecture, four hours; outside study, eight hours. Enforced requisite: course 183A. Thermodynamics, principles of material processing: phase equilibria and transitions, transport mechanisms of heat and mass, nucleation and growth of microstructure. Applications in casting/solidification, welding, consolidation, chemical vapor deposition, infiltration, composites. Letter grading.

**297C. Composites Manufacturing (4)** (Same as Materials Science M297C.) Lecture, four hours; outside study, eight hours. Requisites: course 166C, Materials Science 151. Matrix materials, fibers, fiber preforms, elements of processing, autoclave/compression molding, filament winding, pultrusion, resin transfer molding, automation, material removal and assembly, metal and ceramic matrix composites, quality assurance. Letter grading.

**298. Seminar: Engineering. (2 to 4)** Seminar, to be arranged. Limited to graduate mechanical and aerospace engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

**299A. Seminar: Systems, Dynamics, and Control Topics (2)** (Same as Chemical Engineering M297 and Electrical and Computer Engineering M248S.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

**495. Teaching Assistant Training Seminar (2)** Seminar, two hours; outside study, four hours. Preparation: appointment as teaching assistant in department. Seminar on communication of mechanical and aerospace engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids; grading, advising, and rapport with students. S/U grading.

**596. Directed Individual or Tutorial Studies (2 to 8)** Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

**597A. Preparation for MS Comprehensive Examination (2 to 12)** Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Reading and preparation for MS comprehensive examination. S/U grading.

**597B. Preparation for PhD Preliminary Examinations (2 to 16)** Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. S/U grading.

**597C. Preparation for PhD Oral Qualifying Examination (2 to 16)** Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

**598. Research for and Preparation of MS Thesis (2 to 12)** Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Supervised independent research for MS candidates, including thesis prospectus. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 16)** Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

# Medicine

## Medicine Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**160C. Health Outreach and Education to At-Risk Populations (4)** Seminar, two hours; fieldwork, six to eight hours. Requisites: courses M160A, M160B. Processes involved with designing, delivering, and assessing community health education programs, under supervision of professional staff. P/NP or letter grading.

**180. Special Topics in Medicine (4)** Lecture, four hours; discussion, one hour. Medical topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors and students. Topics may include East/West medicine and global medicine. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**185. Integrative East-West Medicine for Health and Wellness (5)** Lecture, five hours. Introduction to integrative health care and wellness, particularly therapeutic approaches originating from traditional Chinese medicine. Study of theoretical underpinnings of integrative medicine and traditional Chinese medicine, management of personal well-being through experiential learning of various therapeutic modalities, and evidenced-based research and clinical applications of integrative medicine. Topics include integrative East-West medicine and its role in prevention and health cultivation; herbs, diet, and nutritional supplements; pain management using acupuncture, acupressure, massage, and other self-help techniques; integrative medicine research and evidence-based modalities; chronic stress and implications on sleep, inflammation, and maintaining healthy immune system. Incorporates hands-on practice and interactive sessions. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Medicine. (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**M215. Interdepartmental Course: Tropical Medicine (2)** (Same as Pathology M215 and Pediatrics M215.) Lecture, two and one half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of the world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

**256. Interdisciplinary Response to Infectious Disease Emergencies: Medicine Perspective (4)** (Same as Community Health Sciences M256, Nursing M298, and Oral Biology M256.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Nursing, and Public Health during weeks two through five. Letter grading.

**260A. Methodology in Clinical Research I (4)** (Same as Biomathematics M260A.) Lecture, four hours. Recommended preparation: MD, PhD, or dental degree. Requisites: Biomathematics 170A, 265A. Course M260A is requisite to M260B. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

**260B. Methodology in Clinical Research II (4)** (Same as Biomathematics M260B.) Lecture, four hours. Recommended preparation: MD, PhD, or dental degree. Requisites: course M260A, Biomathematics 170A, 265A. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

**260C. Methodology in Clinical Research III (4)** (Same as Biomathematics M260C.) Discussion, four hours. Recommended preparation: MD, PhD, or dental degree. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

**261. Responsible Conduct of Research Involving Humans (2)** (Same as Biomathematics M261.) Lecture, two hours; discussion, two hours. Preparation: completion of one basic course in protection of human research subjects through Collaborative Institutional Training Initiative. Discussion of current issues in responsible conduct of clinical research, including reporting of research, basis for authorship, issues in genetic research, principles and practice of research on humans, conflicts of interest, Institutional Review Board (IRB), and related topics. S/U or letter grading.

**263. Clinical Pharmacology (2)** (Same as Biomathematics M263 and Psychiatry M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (MD, DDS, DNSc, or PhD). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

**270C. Advanced Modeling Methodology for Dynamic Biomedical Systems (4)** (Same as Bioengineering M296A and Computer Science M296A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartamental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

**270D. Optimal Parameter Estimation and Experiment Design for Biomedical Systems (4)** (Same as Bioengineering M296B, Biomathematics M270, and Computer Science M296B.) Lecture, four hours; outside study, eight hours. Requisite: course M270C or Bioengineering CM286 or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

**270E. Advanced Topics and Research in Biomedical Systems Modeling and Computing (4)** (Same as Bioengineering M296C and Computer Science M296C.) Lecture, four hours; outside study, eight hours. Requisite: course M270D. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual MS- and PhD-level project training. Letter grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

# Microbiology, Immunology, and Molecular Genetics

## Microbiology, Immunology, and Molecular Genetics Courses

### Lower Division

**5. Science of Memory and Learning (4)** Lecture, seven hours. Nature of intelligence, overview of brain structure, study of memory systems, including memory retrieval, context of memories with emotion, sleep, and memory. Survey of metacognition and performance of learning. Offered in summer only. P/NP or letter grading.

**6. Microbiology for Nonmajors (4)** Lecture, four hours. Not open for credit to students with credit for course 101. Designed for nonscience students; introduction to biology of microorganisms (bacteria, viruses, protozoa, algae, fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs. P/NP or letter grading.

**10. Medical Microbiology for Nursing Students (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 30A or 30B or Mathematics 3A or 31A. Limited to Nursing majors. Introduction to biology of microbial pathogens, their role in development of human immune response, and presentation of symptoms and disease caused by microbial infections. Letter grading.

**15. Nanoscale Microscopy Laboratory (2)** Lecture, 26 hours; laboratory, nine hours. Recommended requisites: high school biology, chemistry, and physics. Designed as one-week summer course for high school students. Exploratory introduction to three key microscopy techniques for nanoscience research: fluorescence microscopy, scanning probe microscopy, and electron microscopy. Nanoscience is umbrella term that encompasses one diverse interdisciplinary branch of modern science research, including molecular sciences, biotechnology, material science, chemistry, biochemistry, and various fields of engineering. Offered in summer only. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100L. Microbiology Laboratory for Professional Schools (3)** Lecture, two hours; laboratory, four hours. Requisites: Life Sciences 3 and 4, or 7A, 7B, and 23L with grades of C- or better. Recommended corequisite: course 101. Limited to nonmajors. Experimental techniques of microbiology, with emphasis on cultivation and characterization of bacteria. Laboratory exercises include light microscopy, quantitative techniques, and identification methods. Students learn to work effectively in groups to perform experiments, record observations, and analyze results. Letter grading.

**101. Introductory Microbiology (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3 and 4, or 7A, 7B, and 23L. Historical foundations of microbiology; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology. Letter grading.



**102. Introductory Virology (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, or 7A, 7B, and 23L with grades of C– or better. Biological properties of bacterial and animal viruses, replication, methods of detection, interactions with host cells and multicellular hosts. Letter grading.

**103AL. Research Immersion Laboratory in Virology (5)** Lecture, two and one half hours; laboratory, eight hours. Requisites: course 101, Life Sciences 3, 4, and 23L, or 7A, 7B, and 23L. Course 103AL is requisite to 103BL. Limited to Microbiology, Immunology, and Molecular Genetics and Molecular, Cell, and Developmental Biology majors. Research-oriented laboratory experience designed to promote discovery of novel bacterial viruses (phages). Working in teams, students conduct research projects that incorporate techniques in microbiology, virology, and molecular biology and involve use of bioinformatics tools and computational analysis software. Emphasis on reading and understanding scientific literature as well as improving critical thinking skills such as ability to evaluate hypotheses or experimentally address scientific questions. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, and project responsibilities and ownership. Letter grading.

**103BL. Advanced Research Analysis in Virology (4)** Laboratory, six hours. Requisites: course 103AL, and Life Sciences 40 or Statistics 13. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors. Designed to provide students authentic, discovery-based research experience in life sciences. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database entries). Research accomplishments discussed in weekly seminar-style meetings in which student groups create PowerPoint slides and formally present results to class. Production of team poster and final report describing entire research project required. Letter grading.

**105. Biological Microscopy (4)** Lecture, four hours; laboratory, three hours (five weeks only). Requisite or corequisite: Physics 1C or 5B or 6C. Introduction to modern microscopy technologies used in biochemistry, medicine, microbiology, and nano research. Basic image formation principles of microscopy, methods for sample preparation, imaging, data acquisitions, and three-dimensional reconstruction and visualization. Fluoresce, confocal, and super-resolution light microscopy; transmission electron microscopy, electron tomography, and three-dimensional cryo-electron microscopy; and atomic force and other scanning probe microscopy modalities. Practical experience in research provided through five carefully designed electron microscopy laboratory modules. P/NP or letter grading.

**106. Molecular and Genetic Basis of Bacterial Infections (4)** Lecture, three hours; discussion, one hour. Requisite: course 101. Biochemical and genetic properties of bacteria that afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Letter grading.

**107. Viral Pathogenesis (4)** Lecture, three hours; discussion, one hour. Requisites: course 185A, Chemistry 153A. Viral pathogens that infect mammals. Viral entry into and replication in host cells. Host response and host/virus interaction. Pathogenic manifestations exhibited during viral infections. Letter grading.

**109AL. Research Immersion Laboratory in Microbiology (5)** Lecture, three hours; laboratory, eight hours. Requisites: course 101, Life Sciences 3, 4, and 23L, or 7A, 7B, and 23L. Course 109AL is enforced requisite to 109BL. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors and Molecular, Cell, and Developmental Biology majors. Research-oriented laboratory experience designed to promote discovery of novel microorganisms. Working in teams, students conduct research projects that incorporate techniques in microbiology and molecular biology and involve use of bioinformatics tools and phylogenetics software for data analysis. Emphasis on reading and understanding scientific literature as well as improving critical thinking skills such as ability to create and evaluate hypotheses or experimentally address scientific questions. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, and project responsibilities and ownership. Letter grading.

**109BL. Advanced Research Analysis in Microbiology (4)** Laboratory, six hours. Requisites: course 109AL, Life Sciences 40 or Statistics 13. Limited to Microbiology, Immunology, and Molecular Genetics premajors and majors. Designed to provide students authentic, discovery-based research experience in life sciences. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database entries). Research accomplishments discussed in weekly seminar-style

meetings in which student groups create PowerPoint slides and formally present results to class. Production of team poster and final report describing entire research project required. Letter grading.

**C122. Mouse Molecular Genetics (2)** Seminar, two hours. Requisite: Life Sciences 4, or 7A, 7B, and 7C. Designed for students doing research with mice. During past 25 years, molecular revolution has greatly increased power and scope of mouse genetics, and today mouse is primary experimental model in virtually all fields of biology and biomedicine. Seminar forum for in-depth discussion of tools and technologies of mouse genetics and their application to functional genomics, complex traits, stem cell biology, developmental biology, epigenetics, and genetic dissection of diseases. Concurrently scheduled with course C222. P/NP or letter grading.

**123. Advanced Annotation and Comparative Genomics (4)** Lecture, two and one half hours; computer laboratory, six hours. Requisite: course 103AL or Molecular, Cell, and Developmental Biology 187AL with grade of B– or better. Participation in discovery-based research experience, working as research team to analyze microbial genomes using bioinformatics techniques involving variety of online databases. Investigation of cellular pathways and structures as means to discover novel genes and unusual variations in classical systems. Results of high-quality annotation efforts may lead to publication in peer-reviewed science journal. Part of DOE Joint Genome Institute Undergraduate Research in Microbial Genome Annotation education program. Offered in summer only. Letter grading.

**132. Cell Biology of Nucleus (4)** Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4 or 107. Cell biology of eukaryotic nucleus, including principles of chromosome structure, transcription, RNA processing, nuclear-cytoplasmic transport, and cell cycle control. Letter grading.

**C134. Ethics and Accountability in Biomedical Research (2)** Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C234. P/NP grading.

**CM156. Human Genetics and Genomics (5)** (Same as Molecular, Cell, and Developmental Biology CM156.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, and 7C. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

**158. Microbial Genomics (4)** Lecture, three hours; discussion, one hour. Requisite: Chemistry 153A. Evolution, biodiversity, and sequencing of genomes; bacterial and viral genomes; bioenergetics; gene knockouts; genomics of antibiotic resistance; proteomics. Guest lecturers from department and related departments who discuss key papers with focus on their areas of expertise. Letter grading.

**168. Molecular Parasitology (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3 and 4, or 7A, 7B, and 23L. Survey of parasitic protozoa not only as parasites that interact with host, but also as model systems for analysis of basic biological phenomena such as gene regulation, molecular development, cell-cell interactions, molecular evolution, and novel biochemical pathways. Letter grading.

**170. Cell and Gene Therapy (4)** Lecture, three and one half hours; discussion, one hour. Requisites: Chemistry 153A, Life Sciences 107. State-of-art study of stem cells and gene therapy, and approaches to treat congenital/genetic defects, diseases, or injuries in humans. Review of current knowledge of human stem cells and viral and non-viral gene delivery strategies, and how they can be safely evaluated in animal models of disease. Introduction to ethical and legal issues related to cell and gene therapy as well as how to translate therapies into practice including aspects of cell and gene therapy intellectual property, regulatory, and Food and Drug Administration considerations. Includes innovative mock company team pitches to venture capitalists to learn how to raise capital for their new inventions based on what they have learned. Letter grading.

**174. Advanced Topics in Molecular Parasitology (2)** Lecture, two hours. Requisites: course 168, Life Sciences 3 and 4, or 7A, 7B, and 23L. Examination of recent advances in molecular biology of parasites and host/parasite relationship. Specific topics include parasite development, antigenic variation in trypanosomes, RNA editing, prospects for parasitic vaccines. Letter grading.

**178. Quantitative Regulatory Biology and Signal Transduction (4)** (Same as Computational and Systems Biology M178 and Physiological Science M178.) Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 7A, 7B, 7C, 30A, 30B. Introduction to key biological regulatory circuit motifs and systems biology concepts that are critical to understanding how cellular responses are controlled. Letter grading.

**180A. Scientific Analysis and Communication I (2)** Seminar, two hours. Enforced corequisite: course 196A or 198A. Students read and discuss scientific articles and give presentations, introducing research topics using relevant primary literature. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, diverse approaches to research, and project responsibilities and ownership. Acquisition of in-depth and broad knowledge about student research projects, improvement of oral and written communication skills, and full appreciation of process of doing good science and becoming skilled researchers. Letter grading.

**180B. Scientific Analysis and Communication II (2)** Seminar, two hours. Enforced requisites: course 180A, and Life Sciences 40 or Statistics 13. Enforced corequisite: course 196B or 198B. Students give presentations similar to laboratory meeting or research symposium talk in which speakers discuss project goals, methodological approaches, results, and conclusions. How to write research papers as well as prepare and present scientific posters. Production of deliverables that demonstrate research achievements and creation of sense of pride for work accomplished as skilled researchers. Letter grading.

**185A. Immunology (5)** (Formerly numbered C185A.) Lecture, three hours; discussion, 90 minutes. Requisites: Chemistry 153A, Life Sciences 7A, 7B, 7C, 7L. Comprehensive study of experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions. Letter grading.

**C185B. Advanced Immunology and Applications (2)** Lecture, 90 minutes. Requisite: course C185A. Covers similarities and differences between host immune reactions to bacterial and viral infections, and balance required between immune and inflammatory responses. Discussion of various strategies to enhance our immune system against invasion by pathogens or cancer cells without triggering inflammatory and autoimmune diseases, including new cancer immunotherapies. Concurrently scheduled with C285B. Letter grading.

**188A. Special Courses in Microbiology, Immunology, and Molecular Genetics (4)** Seminar, four hours. Requisites: Life Sciences 3 and 4, or 7A, 7B, and 23L. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**188B. Special Courses in Microbiology, Immunology, and Molecular Genetics (2)** Seminar, two hours. Requisite: Life Sciences 3, or 7A, 7B, and 23L. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191H. Honors Research Seminars: Microbiology, Immunology, and Molecular Genetics (2)** Seminar, two hours. Requisite or corequisite: course 198A or 198B or 198C. Limited to senior microbiology, immunology, and molecular genetics honors program students. Discussion of current research literature, with focus on thesis topics/areas that students are working on as part of departmental honors requirements. One-hour presentation of student thesis research and current literature associated with it required. May be repeated for credit. Letter grading.

**192. Undergraduate Practicum in Microbiology, Immunology, and Molecular Genetics (2)** Seminar, six hours. Limited to junior/senior departmental majors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. Consult Student Affairs Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP or letter grading.

**193A. Journal Club Seminars: Microbiology, Immunology, and Molecular Genetics (1)** Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in microbiology, immunology, and molecular genetics field. P/NP grading.

**193B. Journal Club Seminars: Microbiology, Immunology, and Molecular Genetics (1)** Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in microbiology, immunology, and molecular genetics. Letter grading.

**194A. Research Group Seminars: Microbiology, Immunology, and Molecular Genetics (1)** Seminar, one hour. Designed for undergraduate students who are part of research group in department faculty laboratory. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

**194B. Research Group Seminars: UC LEADS and NIH/MARC (2)** Seminar, two hours. Limited to students in UC LEADS and NIH/MARC programs. Analysis, review, and critique of current papers in biomedical sciences disciplines, using skills necessary for effective oral communication and effective use of software such as PowerPoint for oral presentations. May be repeated for credit. Letter grading.

**196A. Research Apprenticeship I in Microbiology, Immunology, and Molecular Genetics (4)** Tutorial, 12 hours. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, and 23L, 3.0 premajor and/or major grade-point average, and at least one term of prior experience in same laboratory in which 196A research is to be conducted. Enforced corequisite: course 180A. Course 196A is enforced requisite to 196B. Designed for undergraduate students who are interested in pursuing inquiry-based and hypothesis-driven research experience in laboratory of departmental faculty mentor. Guided research course to be taken in conjunction with course 180A, followed by continuation research course 196B. Technical aspects vary depending on specific laboratory; however, all students learn how to apply scientific method: propose hypothesis, identify experiments to address hypothesis, perform experiments, and analyze results. How to record information from experimental activities into laboratory notebooks and to write research proposals. Letter grading.

**196B. Research Apprenticeship II in Microbiology, Immunology, and Molecular Genetics (4)** Tutorial, 12 hours. Enforced requisite: course 196A. Enforced corequisite: course 180B. Expansion of scope, increasing depth, and implementation of independence in research to be performed in same laboratory as course 196A to facilitate learning and implementation of goals stated previously. Technical aspects vary depending on specific laboratory; however, all students use scientific method learned in course 196A and continue same experimental scope proposed, but with additional degree of independence in technical and intellectual aspects of research. Letter grading.

**197. Individual Studies in Microbiology, Immunology, and Molecular Genetics (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Microbiology, Immunology, and Molecular Genetics (4)** Tutorial, 12 hours. Course 198A is requisite to 198B, which is requisite to 198C. Limited to junior/senior microbiology, immunology, and molecular genetics honors program students. Directed individual research for departmental honors; students must have faculty sponsor. Progress report must be submitted to faculty sponsor at end of each of first two terms, with honors thesis submitted at end of final term. Maximum of 8 units may be applied toward major, with balance applied toward BS degree requirements. Individual contract required. Letter grading.

**198B. Honors Research in Microbiology, Immunology, and Molecular Genetics (4)** Tutorial, 12 hours. Requisite: course 198A. Limited to junior/senior microbiology, immunology, and molecular genetics honors program students. Directed individual research for departmental honors; students must have faculty sponsor. Progress report must be submitted to faculty sponsor at end of each of first two terms, with honors thesis submitted at end of final term. Maximum of 8 units may be applied toward major, with balance applied toward BS degree requirements. Individual contract required. Letter grading.

**198C. Honors Research in Microbiology, Immunology, and Molecular Genetics (4)** Tutorial, 12 hours. Requisite: course 198B. Limited to junior/senior microbiology, immunology, and molecular genetics honors program students. Directed individual research for departmental honors; students must have faculty sponsor. Progress report must be submitted to faculty sponsor at end of each of first two terms, with honors thesis submitted at end of final term. Maximum of 8 units may be applied toward major, with balance applied toward BS degree requirements. Individual contract required. Letter grading.

**199. Directed Research in Microbiology, Immunology, and Molecular Genetics (4)** Tutorial, 12 hours. Preparation: minimum 2.5 grade-point average in premajor and major. Supervised individual research project under guidance of departmental faculty mentor. Copy of report describing research must be filed with Student Affairs Office by end of term. May be repeated for credit. Individual contract required. Letter grading.

## Graduate

**C222. Mouse Molecular Genetics (2)** Seminar, two hours. Requisite: Life Sciences 4, or 7A, 7B, and 7C. Designed for students doing research with mice. During past 25 years, molecular revolution has greatly increased power and scope of mouse genetics, and today mouse is primary experimental model in virtually all fields of biology and biomedicine. Seminar forum for in-depth discussion of tools and technologies of mouse genetics and their application to functional genomics, complex traits, stem cell biology, developmental biology, epigenetics, and genetic dissection of diseases. Concurrently scheduled with course C122. S/U or letter grading.

**229. Molecular Mechanisms of Host/Pathogen Interaction (4)** (Same as Pathology M229.) Lecture, two hours; discussion, two hours. Enforced requisites: Molecular Biology 254A through 254D. Molecular mechanisms of microbial interactions with eukaryotic host cells that result in disease or pathogen survival. Topics include pathogenesis of common viruses, bacteria, fungi, and parasites, basis of toxin-mediated cellular damage, and immune suppression of microbial tissue damage. Letter grading.

**C234. Ethics and Accountability in Biomedical Research (2)** Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C134. S/U grading.

**CM256. Human Genetics and Genomics (5)** (Same as Molecular, Cell, and Developmental Biology CM256.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, and 7C. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

**261. Molecular and Cellular Immunology (4)** Lecture, four hours. Strongly recommended requisites: Molecular Biology 254A through 254D. Limited to graduate students. Comprehensive course for graduate students and selected undergraduate students covering fundamentals and recent advances in molecular and cellular immunology. Oral presentation required. S/U or letter grading.

**262A. Seminar: Current Topics in Immunobiology of Cancer (2)** Seminar, two hours. Designed for graduate students (or undergraduate students with consent of instructor). Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. May be repeated for credit. S/U or letter grading.

**262B. Seminar: Current Topics in Immunobiology of Cancer (2)** Seminar, two hours. Designed for graduate students (or undergraduate students with consent of instructor). Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. May be repeated for credit. S/U or letter grading.

**262C. Seminar: Current Topics in Immunobiology of Cancer (2)** Seminar, two hours. Designed for graduate students (or undergraduate students with consent of instructor). Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. May be repeated for credit. S/U or letter grading.

**285. Immunology (5)** (Formerly numbered C285.) Lecture, three hours; discussion, 90 minutes. Not open for credit to students with credit for course 261. Comprehensive study of experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions. Letter grading.

**C285B. Advanced Immunology and Applications (2)** Lecture, 90 minutes. Preparation: one course in immunology. Covers similarities and differences between host immune reactions to bacterial and viral infections, and balance required between immune and inflammatory responses. Discussion of various strategies to enhance our immune system against invasion by pathogens or cancer cells without triggering inflammatory and autoimmune diseases, including new cancer immunotherapies. Concurrently scheduled with C185B. Letter grading.

**296 Seminar: Research Topics in Microbiology, Immunology, and Molecular Genetics(1 to 4)** Seminar, two hours; research group meeting, one hour. Limited to departmental graduate students. Advanced study and analysis of current topics in microbiology, immunology, and molecular genetics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**298. Current Topics in Microbiology, Immunology, and Molecular Genetics (2)** Seminar, two hours. Presentation of student oral critiques and participation in discussions on assigned topics. May be repeated for credit. S/U grading.

**495A. Preparation for Teaching Microbiology in Higher Education I (2)** Seminar, two hours. Designed for graduate students. Study of problems and methodologies in teaching microbiology, including workshops, seminars, apprentice teaching, and peer observation. S/U grading.

**495B. Preparation for Teaching Microbiology in Higher Education II (1)** Seminar, one hour. Requisite or corequisite: course 495A. Designed for first-time teaching assistants and to be taken in term in which they teach. In odd weeks, discussion of developments in student classes, with instruction on digital pedagogy and evaluation of student teaching. In even weeks, participation in online discussion forum case studies. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Research. (2 to 12)** Tutorial, to be arranged. S/U grading.

**598. Research for MS Thesis. (2 to 12)** Tutorial, to be arranged. S/U grading.

**599. Research for PhD Dissertation (2 to 12)** Tutorial, to be arranged. S/U grading.

# Military Science – Army ROTC

## Military Science Courses

### Lower Division

**11. Foundations of Officership (2)** Lecture, one hour. Introduction to issues and competencies that are central to commissioned officer's responsibilities. Framework established to understand officership, leadership, military customs, briefings, and life skills such as physical fitness, nutrition, and time management. P/NP or letter grading.

**12. Basic Military Leadership (2)** Lecture, one hour. Prerequisite: course 11. Introduction to fundamentals of leadership, Army leadership values, ethics, and counseling techniques. Foundation of basic leadership fundamentals central to commissioned officer's responsibilities established. P/NP or letter grading.

**13. Leadership Development (2)** Lecture, one hour. Prerequisite: course 12. Introduction to military problem solving, methodology students can use in their daily lives. Experiential exercises in goal setting and military writing style. Broad overview of life in Army. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**21. Individual Leadership Development (3)** Lecture, two hours. Introduction to various individual leadership personality types, in combined lecture, discussion, and experiential learning, to assist students in development of their own individual leadership style. Additional emphasis on military factors and principles of leadership, goal setting, basic communication, and consideration of others. P/NP or letter grading.

**22. Leadership Development and Military Planning (3)** Lecture, two hours. Prerequisite: course 21. Discussion of various methods of communication, planning, and decision making, through combined lecture, discussion, and experiential learning, with focus on written communication and group communication essential for leadership development. Introduction to and application of military planning process in developing operations orders. P/NP or letter grading.

**23. Subordinate Development and Army Organization (3)** Lecture, two hours. Prerequisite: course 22. Discussion/application of team-building techniques and subordinate development, through combined lecture, discussion, and experiential learning, with additional focus on commissioned officer, branches, and Army organization. Application of counseling techniques, motivation, and consideration of ethics and values for modern leaders. P/NP or letter grading.

### Upper Division

**110. U.S. Military History (3)** Lecture, three hours; discussion, one hour. Survey of American military history from 1860 to the present. Causes of war, strategy, tactics, and technological developments set against economic, political, and diplomatic concerns. Impact of warfare on society.

**131. Tactical Planning and Analysis (4)** Lecture, three hours; laboratory, four hours. Introduction to leadership development process used to evaluate military leadership performance. Examination of how to conduct individual and small unit training as well as introduction to basic principles of tactics. Emphasis on study of reasoning skills, troop leading procedures, and military orders process. P/NP or letter grading.

**132. Army Officership and Communication (4)** Lecture, three hours; laboratory, four hours. Examination of officership that culminates in detailed case study. Interpersonal communication, with focus on general communication theory as well as written and spoken communication skills. Presentation of information briefing to receive feedback from both instructor and fellow students. P/NP or letter grading.

**133. Leadership and Problem Solving (4)** Lecture, three hours; laboratory, four hours. Examination of role communications, values, and ethics play in effective leadership, including ethical decision making, consideration of others, transactional and transformational leadership, and survey of Army leadership doctrine. Emphasis on improving oral and written communication abilities and leadership development and assessment. P/NP or letter grading.

**141. Leadership and Management (4)** Lecture, three hours; laboratory, four hours. Interactive course to develop student proficiency in planning and executing complex training operations. Counseling techniques and development of skills needed to lead various organizations. Exploration of training management, leadership skills, and developmental counseling techniques. P/NP or letter grading.

**142. Leadership, Ethics, and Military Law (4)** Lecture, three hours; laboratory, four hours. Interactive course to enhance student understanding of organizational culture, leadership, and ethics. Understanding and enhancement of leader-member relations, assessment of organizational culture and ethical climate, and how to effect change in organizations. Exploration of foundations of military law and law of war. P/NP or letter grading.

**143. Officership: Professional Military Leadership (4)** Lecture, three hours; laboratory, four hours. Capstone interactive leadership course to prepare students for challenges of being commissioned officers in U.S. Army by discussing various leadership challenges and case studies. Study of military units, with specific emphasis on joint operations involving Army, Navy, Air Force, and Marine Corps assets, military operations other than war, and global war on terror. Other topics include personnel administration, maintenance management, and financial planning. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**197. Individual Studies in Military Science. (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**Z. Leadership Laboratory. (0)** Laboratory, three hours (lower-division cadets) or four hours (upper-division cadets). All cadets must be concurrently enrolled in a military science course; upper-division cadets must also be under a contracted obligation with department. Designed to allow cadets to apply leadership techniques and military skills taught in classroom and to develop their confidence as future military officers. No grading.

# Molecular and Medical Pharmacology

## Molecular and Medical Pharmacology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**194. Group Seminars and Discussions: Cross-Disciplinary Scholars in Science and Technology Project (4)** Seminar, two hours; discussion, two hours. Limited to Cross-Disciplinary Scholars in Science and Technology (CSST) students. Communication and collaboration skills, specifically in interdisciplinary settings and introduction to research project design and proposal process. Students submit written CSST project proposal and give oral presentations of scientific proposals. May be repeated for credit. Letter grading.

**199. Directed Research in Molecular and Medical Pharmacology (2 to 8)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Special studies in pharmacology, including either reading assignments or laboratory work or both, designed for proper training of students. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**200. Introduction to Laboratory Research (8)** Laboratory, eight to 20 hours. Individual projects in laboratory research for beginning graduate students. At end of each term students submit to their supervisor reports covering research performed. Pharmacology graduate students must take this course three times during their first two years in residence. Letter grading.

**205A. Introduction to Chemistry of Biology (4)** (Same as Chemistry CM205A.) Lecture, three hours; discussion, one hour. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Letter grading.

**205B. Issues on Chemistry/Biology Interface (2)** (Same as Chemistry M205B.) Seminar, one hour. Requisite: course M205A. Selected talks and papers presented by training faculty on solving problems and utilizing tools in chemistry and molecular biology on chemistry/biology interface (CBI). S/U grading.

**237. Research Frontiers in Cellular and Molecular Pharmacology (3)** Lecture, three hours. Detailed examination of principles of pharmacology and mechanisms of drug action at organismal, tissue, cellular, and molecular levels, with emphasis on receptors, receptor/effector coupling, neurotransmitters, cardiovascular pharmacology, autonomic and central nervous system pharmacology. Letter grading.

**248. Introduction to Molecular Imaging (4)** (Same as Bioengineering M248 and Physics and Biology in Medicine M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of molecular imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

**251. Seminar: Pharmacology (2)** Seminar, two hours. Required of all first- and second-year students. Presentation and discussion of graduate student research progress. Letter grading.

**257. Introduction to Toxicology (4)** (Same as Pathology M257.) Requisite: course 241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems. S/U or letter grading.

**258. Pathologic Changes in Toxicology (4)** (Same as Pathology M258.) Designed to give students experience in learning normal histology of tissues which are major targets of toxin and the range of pathologic changes that occur in these tissues (liver, bladder, lung, kidney, nervous system, and vascular system). S/U or letter grading.

**286. Business of Science: Exploring Entrepreneurship Seminar (1)** Seminar, one hour. Limited to graduate students. Further exploration of topics discussed in course 287, allowing students to interact with speakers and bring their individual concerns to table. Past and present students encouraged to enroll. S/U grading.

**287. Business of Science (2)** Lecture, two hours. Designed for graduate students. (undergraduate students may enroll with consent of instructor). Introduction to principles of business and entrepreneurship in technology sectors. Basic business skills taught to effectively perform in commercial environment and within academic environment. Application of course material by performing feasibility studies that have potential to receive funding and become actual companies. Exploration of entrepreneurship, particularly formation and operation of new business ventures. Presentations by and questioning of successful technology entrepreneurs, identifying and evaluating new venture opportunities, development of financing, and entry and exit strategies. S/U or letter grading.

**288. Gene Therapy (4)** Lecture, three hours; discussion, one hour. Introduction to basic concepts of gene therapy, wherein treatment of human disease is based on transfer of genetic material into an individual. Discussion of molecular basis of disease, gene delivery vectors, and animal models. Letter grading.

**291. Special Topics in Pharmacology (4)** Lecture, four hours. Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced PhD candidates and faculty. Letter grading.

**292. Research Projects, Proposals, and Presentations (6)** Lecture, four hours; discussion, four hours. Limited to departmental majors. Introduction to format and requirements of research proposals, so students can critically read primary papers and give formal scientific presentations, ask new questions, formulate new hypotheses, and construct research projects, understand balance of importance, novelty, and feasibility, and develop ability to think independently, creatively, and comprehensively. Letter grading.

**596. Directed Individual Research in Pharmacology (4 to 12)** Tutorial, to be arranged. S/U or letter grading.

**599. Research for and Preparation of PhD Dissertation (4 to 12)** Tutorial, to be arranged. S/U grading.

# Molecular Biology

## Molecular Biology Courses

### Graduate

**M202. Advanced Topics in Cryogenic Electron Microscopy (3)** (Same as Biological Chemistry M202.) Lecture, two hours; discussion, one hour. Students master advanced topics in membrane protein biology, and learn both theory and practice of cryogenic electron microscopy (cryo-EM) as emerging technology in structural biology. Cryo-EM methodologies covered include cryotomography, single particle reconstruction, electron crystallography, and micro-crystal electron diffraction. Letter grading.

**235. Rigor and Reproducibility (2)** Lecture, one hour; discussion, one hour. Two cornerstones of science advancement are rigor in designing and performing scientific research and ability to reproduce biomedical research findings. Applications of rigor ensures robust and unbiased experimental design, methodology, analysis, interpretation, and reporting of results. When results can be reproduced by multiple scientists, it validates original results and readiness to progress to next phase of research. Scientific rigor is strict application of scientific method to ensure unbiased and well-controlled experimental design, methodology, analysis, interpretation, and reporting of results. Covers literature and videos on rigor and reproducibility in biomedical research. Discussion of issues raised by lecture, or case-studies, with training program faculty. Students learn that reproducibility is common problem in biomedical research and how to improve it. S/U grading.

**252. Writing for Science (1)** Seminar, one hour. Corequisite: Biological Chemistry 251A or 251B or 251C. Limited to first-year Molecular Biology PhD students. Development of specific skills in scientific writing within context of one advanced course on mechanics of gene transcription. Letter grading.

**254A. Concepts in Molecular Biosciences (4)** Lecture, four hours; discussion, four hours (five weeks). Limited to human genetics and molecular biology graduate students. Covers four basic experimental approaches of biochemistry and molecular biology in context of various specific topics, including (1) structural biology, with protein and nucleic acid structure and molecular recognition, (2) use of cell-free and purified in vitro systems to dissect reaction mechanisms, (3) biochemical approaches to dissecting complex reactions/pathways in cells, and (4) enzymology and protein chemistry. Letter grading.

**254B. Concepts in Molecular Biosciences (4)** Lecture, four hours; discussion, four hours (five weeks). Important biological problems that have been genetically analyzed in different organisms or small number of related problems. Major genetic approaches used in relevant organisms, including both forward and reverse genetic approaches, genetic interactions between genes (genetic enhancers and suppressors), transgenic technology, and systematic genomic strategies. Letter grading.

**254C. Concepts in Molecular Biosciences (4)** Lecture, four hours; discussion, four hours (five weeks). Molecular mechanisms underlying complex problems in cell biology. Experimental approaches used to define mechanisms involved in protein targeting, cell structure and subcellular organization, cell communication, and intracellular signaling. Analysis of pathways that connect these cellular processes. Letter grading.

**254D. Concepts in Molecular Biosciences: Statistical Tools and Concepts for Molecular Biologists (3)** Lecture, two hours; discussion, two hours. Study covers specific basic statistical concepts required to be successful modern molecular biologist, and applies these tools to analyze real-world datasets, such as RNA sequencing. Topics include distributions, confidence intervals, and p-values; linear and logistic statistical models; high dimensional summaries through unsupervised learning (e.g., PCA and clustering); and permutation-based statistical tests. Analysis carried out using statistical programming language R. Study includes lectures, R how-to sessions, and student presentations. Letter grading.

**255. Scientific Writing (3)** Lecture, two hours; discussion, one hour. Limited to first-year Molecular Biology PhD students. Improvement of academic literacy through development of specific skills in scientific writing. Review of principles of effective writing using practical examples and exercises. Topics include principles of good writing, tricks for writing faster and with less anxiety, format of scientific manuscripts, art of editing, and issues in publication and peer review. Letter grading.

**298. Current Topics in Molecular Biology (2)** Student presentation/seminar, two hours. Students present oral critiques and participate in discussions on assigned topics. S/U grading.

**300. Entering Mentoring Training Program (1)** Seminar/discussion, 90 minutes. Limited to 25 graduate students. Offers formal training on effective mentoring of undergraduate students in science laboratories. Priority given to those who either have prior experience as mentor or are currently mentoring undergraduates; however, all are encouraged. Exploration of mentoring strategies through lecture, collaborative learning, and case studies. Topics include maintaining effective communication, aligning expectations, addressing equity and inclusion, fostering independence, cultivating ethical behavior, and articulating mentoring philosophy. S/U grading.

**497. Career Readiness Inside and Outside Academy (2)** Seminar, 90 minutes. Limited to 25 graduate students. Preparation for and exploration of career options inside and beyond academia. Performance of targeted career research, practicing of professional conduct and communication, and exploration of nuances of diverse workplaces. S/U grading.

**596. Directed Individual Studies (2 to 12)** Tutorial, to be arranged. Directed individual research or study. May be repeated for maximum of 12 units. S/U grading.

**599. PhD Dissertation Research and Writing. (2 to 12)** Tutorial, to be arranged. Directed individual studies for students who have advanced to candidacy. May be repeated for maximum of 12 units. S/U grading.

# Molecular Toxicology

## Molecular Toxicology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Graduate

**211A. Molecular Toxicology Seminar (1)** Seminar, one hour twice per month. Seminar series which alternately features outside speakers and members of UCLA molecular toxicology community (students, postdoctoral fellows, and faculty) and deals with topics relevant to molecular toxicology. In Progress grading (credit to be given only on completion of courses 211B and 211C).

**211B. Molecular Toxicology Seminar (1)** Seminar, one hour twice per month. Seminar series which alternately features outside speakers and members of UCLA molecular toxicology community (students, postdoctoral fellows, and faculty) and deals with topics relevant to molecular toxicology. In Progress grading (credit to be given only on completion of course 211C).

**211C. Molecular Toxicology Seminar (1)** Seminar, one hour twice per month. Seminar series which alternately features outside speakers and members of UCLA molecular toxicology community (students, postdoctoral fellows, and faculty) and deals with topics relevant to molecular toxicology. S/U grading.

**242. Advanced Molecular Toxicology (4)** (Formerly numbered M242.) Lecture, two hours; discussion, two hours. Requisite: Environmental Health Sciences C240. Preparation: undergraduate biology and chemistry courses. Examination of recent literature on mechanisms of toxicity. Didactic lectures and student presentation of papers selected by instructor on various aspects of toxic mechanisms, including free radical generation, oxidative stress and adaptive pathways, mechanisms of cell death, inflammation and fibrosis, autophagy and diseases, metal toxicity/ion homeostasis, carcinogenesis, DNA damage and repair, cancer and gene environmental interactions, toxicity testing and radiation carcinogenesis, toxicology of major pollutants including air pollution, persistent organic pollutants and dioxins, toxicology of major organ including liver, kidney, immune, reproductive and nervous system, and nanotoxicology. Discussion of various papers. Letter grading.

**247. Advanced Concepts in Gene-Environment Interactions (4)** (Same as Environmental Health Sciences M241.) Lecture, three hours; discussion, one hour. Comprehensive and practical examination of emerging science of gene-environment interaction. Discussion of primary components of field, including role of metabolic pathways in modifying environmental responses and importance of environmental influences in human disease. Exploration of selected hot topics in field, such as importance of epigenetics and of microbiome. S/U or letter grading.

**296B. Research Topics in Molecular Toxicology: Molecular Carcinogenesis (2)** Research group meeting, two hours. Advanced study and analysis of current topics in molecular toxicology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**296F. Research Topics in Molecular Toxicology: Genetic Toxicology (2)** Research group meeting, two hours. Advanced study and analysis of current topics in molecular toxicology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. Individual guided studies under direct faculty supervision. May not be applied toward degree course requirements. May be repeated for credit. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations (2 to 12)** Tutorial, four hours. May not be applied toward degree course requirements. May be repeated for credit. S/U grading.

**599. PhD Dissertation Research. (8 to 12)** Tutorial, to be arranged. May not be applied toward degree course requirements. May be repeated for credit. S/U grading.

# Molecular, Cell, and Developmental Biology

## Molecular, Cell, and Developmental Biology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**30H. Collaborative Undergraduate Research Laboratory in Yeast, Genetics, and Molecular Biology (5)** Lecture, two hours; laboratory, six hours. Limited to 24 students in Collaborative Undergraduate Research Laboratory (CURL), sponsored by Howard Hughes Medical Institute Professors Program. Basic training in biological research, covering topics in molecular genetics, molecular biology, model organism biology, and data analysis. Letter grading.

**50. Stem Cell Biology, Politics, and Ethics: Teasing Apart Issues (5)** Lecture, three and one half hours; discussion, 90 minutes. Developmental biology of various types of human stem cells. Important functional differences between embryonic, hematopoietic, and adult stem cells, as well as differences in their biomedical potentials. Discussion of history of debate surrounding embryos, as well as various social, ethical, political, and economic aspects of stem cell research. P/NP or letter grading.

**60. Biomedical Ethics (5)** Lecture, three hours; discussion, one hour. Examination of importance of ethics in research and exploration of how and why bioethics is relevant to reproductive screening, policy formation, public regulation, and law. Provides foundation in traditional ethics, consideration of sub-categories of bioethics, neuroethics, and eugenics, and how to apply ethics to contemporary issues in research and technology. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Human Stem Cells and Medicine (5)** Lecture, three and one half hours; discussion 90 minutes. Stem cells have potential to revolutionize way medicine is practiced today. Some stem cell therapies are already used successfully to treat thousands of people worldwide. Other stem cell therapies are considered experimental; therefore treatments must be monitored by Food and Drug Administration to ensure safety and efficacy. Some stem cell therapies are offered with minimal scientific justification, relying on hope and hype rather than scientific fact. Exploration of use of stem cells in modern medicine to take close look at science behind some of today's most famous and infamous stem cell medical applications. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100. Introduction to Cell Biology (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, and 23L. Not open for credit to Molecular, Cell, and Developmental Biology majors or to students with credit for course 165A. Analysis of cell organization, structure, and function at molecular level. Cell membranes and organelles, membrane transport, cellular signaling, cytoskeleton and cell movement, intracellular trafficking, cell energetics. Letter grading.

**104AL. Research Immersion Laboratory in Developmental Biology (5)** Lecture, two hours; laboratory, eight hours. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. Course 104AL is requisite to 104BL. Limited



to Molecular, Cell, and Developmental Biology and Microbiology, Immunology, and Molecular Genetics majors. Discovery-based research using sea urchins as model system. Students determine expression of unstudied sea urchin genes using combination of molecular biology and computation techniques. May not be repeated for credit. Letter grading.

**104BL. Advanced Research Analysis in Developmental Biology (5)** Laboratory, six hours. Enforced prerequisite: course 104AL. Limited to Molecular, Cell, and Developmental Biology majors. Investigation to be primarily computational in nature whereby students use bioinformatics or mathematical modeling software to interpret, expand, or refine datasets. Use of graphics software to prepare figures and illustrations for presentations, posters, reports, and websites (database entries). Research accomplishments discussed in weekly seminar-style meetings in which student groups create PowerPoint slides and formally present results to class. Production of team poster and final report describing entire research project required. Letter grading.

**120. Reproductive Science and Health (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 7A, 7B, 7C, 107. Study of the cell, molecular and developmental biology of the reproductive system, and how this impacts reproductive health and pregnancy. Letter grading.

**130. Fundamentals of Digital Imaging and Image Processing (5)** (Same as Computational and Systems Biology M130.) Lecture, three hours; laboratory, two hours. Requisites: Life Sciences 7A, 7B, 7C, and Life Sciences 30A, 30B, and 40 or Statistics 13, or Mathematics 3A, 3B, and 3C, or Mathematics 31A, 31B, and 32A or 33A. Digital imaging has become integral tool to our everyday lives and to nearly every field of life sciences. Quantitative approach to learning about basic properties of digital signals and surveying fundamental methods for processing and analyzing images. Letter grading.

**138. Developmental Biology (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. Development of understanding of fundamental molecular mechanisms and cellular activities guiding formation of complex organism from single fertilized egg. Development of model organisms to understand conserved nature of developmental decisions across animal kingdom, distinct features that lead to diversification of animal shape and form during evolution. Origin and roles of stem and progenitor cells in development and maintenance of specific organ systems. Roles of cell shape change, cell death, proliferation, and migration in generating shape of embryo, organs, and tissues. Mechanisms by which cells become different from and communicate with one another to coordinate their activities in time and space in embryo. Special emphasis on experimental approaches used to address these fundamental questions that determine how organized tissues and organs are formed and maintained throughout life of organism. Letter grading.

**140. Cancer Cell Biology (5)** (Same as Biological Chemistry M140.) Lecture, three hours; discussion, one hour. Requisite: course 165A. Cancer causes and genetics. Effects of cell transformation on cell growth and metabolism. Altered cell cycle, metabolism, and differentiation pathways in cancer cells. Tumor microenvironment contributions to cancer malignancy, including angiogenesis, metastasis, and immune system evasion. Letter grading.

**C141. Molecular Basis of Plant Differentiation and Development (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of variety of plant systems, with focus on developing critical understanding of current experimental basis of research in this field. Concurrently scheduled with course C239. Letter grading.

**142. Design Principles of Biological Circuits (5)** Lecture, three hours; laboratory, four hours. Requisites: Life Sciences 7A, 7B, 7C, and 107, and Life Sciences 30A and 30B or Mathematics 3A, 3B, and 3C or Mathematics 31A and 31B, and Life Sciences 40 or Statistics 10 or 13. Quantitative analysis of genetic circuits that control behavior of biological systems, including prokaryotic model organisms and multicellular developmental systems. Introduction of basic principles of systems biology through specific examples. Application of these principles in designing synthetic genetic circuits. Letter grading.

**143. Developmental Biology: Genetic Control of Organogenesis (5)** Lecture, three hours; discussion, one hour. Requisites: course 138, Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. Cellular and molecular basis of animal embryology, with primary emphasis on vertebrate organ development, but including pertinent material from *Drosophila* and other invertebrate model organisms. Letter grading.

**144. Molecular Biology of Cellular Processes (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. Not open for credit to students with credit for Chemistry 153B. Development of thorough understanding of fundamentals of modern molecular biology both from perspective of known molecular mechanisms for regulating fundamental processes in cells and from theoretical applied perspective for

using molecular biology as laboratory tool. Special emphasis on molecular mechanisms that relate to chromatin and histone modifications, DNA replication and repair, transposition, microRNAs, meiosis, and splicing. Application of molecular biology as tool to understand embryonic development, reprogramming, cancer, and stem cells. Development of sophisticated understanding of DNA, RNA, and protein as well as capability of designing experiments to address fundamental questions in biology and interpreting experimental data. Letter grading.

**145. Appreciation and Critical Review of Biomedical Research (4)** Seminar, four hours. Corequisite: one course from 198B, 198C, 199B, 199C. Designed to offer students perspectives on how to appreciate independent research they are conducting in faculty mentor's laboratory, and allow them to gain wider understanding of molecular, cell, and developmental biology. Through free-form Socratic learning method, class participation and interaction with classmates is encouraged, while students gain understanding of process and value of peer evaluation, and improved verbal and written presentation skills. Letter grading.

**146. Metabolism and Disease (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 7A, 7B, 7C, 23L, 107. Contribution of cellular metabolism to biology of human diseases including cancer and diabetes. Exploration of major alterations of cellular metabolism in disease; tools and technologies that enable detailed characterization of metabolic alterations; therapeutic targeting of metabolic vulnerabilities; and utility of altered cellular metabolism as diagnostic and predictive biomarkers. Letter grading.

**C150. Plant Communication (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. Most people think of plants as static organisms, yet they live in world of symbiosis and community. Plants change atmosphere, enrich soil, and communicate with insects, bacteria, and each other—Earth's ultimate symbiote. Just as science has revealed over time misconceptions about how things work at deeper level, scientists and economists now recognize that beyond obvious need to grow above-ground biomass for fuel production, we must better understand how to make that biomass in sustainable manner. Introductory course in chemical ecology and how natural compounds affect gene expression. Emphasis on role of natural compounds in plant/microbe, plant/plant, and plant/herbivore interactions; synopsis of principles of plant defense mechanisms and responses to microbial infections. Concurrently scheduled with course C250. P/NP or letter grading.

**150AL. Research Immersion Laboratory in Plant-Microbe Ecology (5)** Lecture, two hours; laboratory, eight hours. Enforced requisites: Life Sciences 7A, 7B, 7C, 23L, 107. Course 150AL is enforced requisite to 150BL. Limited to Molecular, Cell, and Developmental Biology majors. Introductory plant-microbe biology laboratory to give students hands-on experience doing experiments and making their own observations about plants and microbiome. Letter grading.

**CM156. Human Genetics and Genomics (5)** (Same as Microbiology CM156.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, and 7C. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

**160. Principles of Light Microscopy (4)** Lecture, three hours; laboratory, two hours. Requisites: Life Sciences 7A, 7B, 7C, 23L. Over last two decades, there has been explosion of new techniques in light microscopy which has provided us with invaluable tools for biological research. Study of light microscopy techniques currently used in research laboratories. Basics of light microscopy (image formation, magnification, resolution, contrast), widefield and fluorescence microscopy, optical sections (confocal, multi-photon, light-sheet and total internal reflection fluorescence microscope), and super-resolution microscopy. Laboratory sessions include setting up and using simple, rail-based microscope; hands-on time and demonstrations on brightfield/epifluorescence, confocal, light-sheet and super-resolution microscopes. Letter grading.

**165A. Biology of Cells (5)** Lecture, three hours; discussion, one hour. Requisites: Chemistry 14D or 30B, Life Sciences 3, or 7A, 7B, and 7C. Not open for credit to students with credit for course 100. Molecular basis of cellular structure and function, with focus on each individual cellular organelle, as well as interaction of cells with extracellular environment and with other cells. Material presented in context of experimental questions and answers to incorporate concept of scientific method and recent advances in cell biology research. Exposure in discussions to recent scientific articles that directly relate to information examined in lectures. Letter grading.

**165B. Molecular Biology of Cell Nucleus (5)** Lecture, three hours; discussion, two hours. Requisite: course 165A. Continuation of course 165A. Molecular biology of eukaryotic cell nucleus, with focus on structure, organization, replication, and repair of eukaryotic genome; eukaryotic gene expression, including transcription, translation, and transport; cell cycle and cancer. Study of advanced specialized topics to allow integrated approach to molecular cell biology. Material presented in context of experimental questions and answers to incorporate concept of scientific method and recent advances in cell biology research. Exposure in discussions to current literature that directly relates to information examined in lectures. Letter grading.

**167. Genetic Engineering: History, Science, and Applications in Medicine, Agriculture, and Law (6)** Lecture four hours; discussion two hours. Requisites: Life Sciences 7A, 7B. Not open for credit to students with credit for course 70 or Honors Collegium 70A. Provides historical and scientific perspective on field of genetic engineering with emphasis on social, legal, and ethical issues that arise from emerging new genetic technologies. Provides solid scientific foundation for field of genetic engineering, and puts genetic engineering into historic and social perspective so that students can make objective decisions about how this technology should be used in future. Course is highly interactive, team-oriented, problem-based, and teaches students how to think critically about experimental science, societal issues raised by advances in genetic engineering, genomics, and human reproduction. Includes interactive, media-oriented lectures with hands-on experiments and demonstrations, and seminar style discussions focusing on seminal articles in history of genetic engineering. P/NP or letter grading.

**168. Stem Cell Biology (5)** Lecture, three hours; discussion, one hour. Requisites: courses 138, 165A. State-of-art education of embryonic and adult stem cells and how these pluripotent/multipotent cells can be used to treat congenital defects, diseases, or injury in humans. Review of current knowledge of human and mouse embryonic stem cells and how they develop into various tissue types. Discussion of adult stem cells in hematopoietic, nervous, and other organ systems to provide examples of tissue-specific stem cells and their impact in human disease. Examination of various model organisms as examples of how model organisms have helped to discover fundamental principles in stem cell biology. How advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Ethical and legal issues related to stem cell research. Letter grading.

**170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4)** (Same as Chemistry CM170.) Lecture, two to three hours; discussion, zero to two hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3 and 23L, and Chemistry 153L. Recommended: Chemistry 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. P/NP or letter grading.

**172. Genomics and Bioinformatics (5)** Lecture, three hours; discussion, one hour. Requisite: course 144 or 165B or Chemistry 153B or Microbiology 132. Genomics is study of complete repertoire of molecules in cells. Topics include human and yeast genomes and genetic approaches to study of function of individual genes, fundamental bioinformatics algorithms used to study relationship between nucleotide and protein sequences and reconstruction of their evolution, use of microarray technologies to measure changes in gene expression, analysis of microarray data including clustering and promoter analysis, proteomics topics including protein expression and interactions, epigenomic study of DNA methylation and chromatin modification, and systems biology, or computational approaches to integrating varied genomic data to gain more complete understanding of cellular biology. Letter grading.

**C174A. Advanced Topics in Cell and Molecular Biology: Molecular Evolution (2)** Lecture, two hours. Requisites: courses 100 or 165A, 144, Life Sciences 4 or 107. Recent developments in fields of molecular, cell, and developmental biology. Current developments in field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Concurrently scheduled with course C222A. Letter grading.

**C174B. Advanced Topics in Cell and Molecular Biology: Molecular Biology of Cell Nucleus (2)** Lecture, two hours. Requisites: courses 100 or 165A, 144, Life Sciences 4 or 107. Recent developments in fields of molecular, cell, and developmental biology. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Concurrently scheduled with course C222B. Letter grading.

**C174D. Advanced Topics in Cell and Molecular Biology: Molecular Biology of Extracellular Matrix (2)** Lecture, two hours. Requisites: courses 100 or 165A, 144. Recommended: course 138. Recent developments in fields of molecular, cell, and developmental biology. Synthesis of key extracellular matrix proteins

and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Concurrently scheduled with course C222D. Letter grading.

**175A. Neuroscience: From Molecules to Mind—Cellular and Systems Neuroscience (5)** (Same as Neuroscience M101A, Physiological Science M180A, and Psychology M117A.) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 7C, Physics 1B or 1BH or 5C or 6B. Students must receive grade of C– or better to proceed to next course in series. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

**175B. Neuroscience: From Molecules to Mind—Molecular and Developmental Neuroscience (5)** (Same as Neuroscience M101B, Physiological Science M180B, and Psychology M117B.) Lecture, four hours; discussion, 90 minutes. Requisites: course M175A (with grade of C– or better), Life Sciences 7C. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

**175C. Neuroscience: From Molecules to Mind—Behavioral and Cognitive Neuroscience (5)** (Same as Neuroscience M101C, Physiological Science M180C, and Psychology M117C.) Lecture, four hours; discussion, 90 minutes. Requisite: course M175A with grade of C– or better. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

**180A. Scientific Analysis and Communication I (2)** Seminar, two hours. Enforced corequisite: course 196A. Students read and discuss scientific articles and give presentations, introducing research topics using relevant primary literature. Critical aspects of research process, including record keeping, ethics, laboratory safety and citizenry, mechanics of scientific writing, diverse approaches to research, and project responsibilities and ownership. Acquisition of in-depth and broad knowledge about student research projects, improvement of oral and written communication skills, and full appreciation of process of doing good science and becoming skilled researchers. Letter grading.

**180B. Scientific Analysis and Communication II (2)** Seminar, two hours. Enforced requisites: courses 180A, 196A. Enforced corequisite: course 196B. Students give presentations similar to laboratory meeting or research symposium talk in which speakers discuss project goals, methodological approaches, results, and conclusions. How to write research papers as well as prepare and present scientific posters. Production of deliverables that demonstrate research achievements and creation of sense of pride for work accomplished as skilled researchers. Letter grading.

**187AL. Research Immersion Laboratory in Genomic Biology (5)** Lecture, three hours; laboratory, six hours. Requisites: Life Sciences 4 or 107, 23L. Course 187AL is requisite to 187BL. Limited to Molecular, Cell, and Developmental Biology majors. Introduction to cutting-edge genomic technologies and bioinformatics methods and resources for genome annotation. Students propose original research projects related to gene annotation and drive their projects using bioinformatics tools. Students are provided fragments of genome from relatively poorly studied organism that has been sequenced at UCLA. May not be repeated for credit. Letter grading.

**188. Special Courses in Molecular, Cell, and Developmental Biology (2)** Seminar, two hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activ-

ities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Molecular, Cell, and Developmental Biology (2)** Seminar, two hours. Designed for junior/senior departmental majors. Intended for students with strong commitment to pursue graduate studies in molecular, biochemical, physiological, and biomedical fields. Weekly variable topics course with reading, discussion, and presentation of paper selected from current literature. May be repeated once for credit. P/NP or letter grading.

**192A. Undergraduate Practicum in Molecular, Cell, and Developmental Biology (4)** Seminar, three hours. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. Consult Undergraduate Office for further information. May not be applied toward course requirements for Molecular, Cell, and Developmental Biology major. May be repeated once for credit. P/NP or letter grading.

**192B. Undergraduate Practicum: CityLab (2)** Seminar, two hours. Limited to juniors/seniors in any life sciences major. CityLab training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. May not be applied toward course requirements for Molecular, Cell, and Developmental Biology major. May be repeated once for credit. P/NP or letter grading.

**193. Journal Club Seminars: Molecular, Cell, and Developmental Biology (1)** Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B or 199C. Limited to juniors/seniors. Development of in-depth understanding of and ability to discuss current literature in field of students' own research. May be repeated for credit. P/NP grading.

**194A. Research Group Seminars: Molecular, Cell, and Developmental Biology (1)** Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B or 199C. Limited to juniors/seniors. Involvement in laboratory's weekly research group meeting to encourage student participation in research and to stimulate progress in specific research areas. Discussion of use of specific research methods and current literature in field of research of faculty members or students. May be repeated for credit. P/NP or letter grading.

**194B. Research Group Seminars: Current Topics in Biomedical Sciences (2)** Seminar, two hours. Limited to juniors/seniors in research traineeships or those who have strong commitment to pursue graduate studies in molecular, biochemical, physiological, or biomedical fields. Weekly presentation and discussion of paper selected from current literature. May be repeated for credit. Letter grading.

**196A. Research Apprenticeship I in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Requisites: Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107, 3.0 premajor and/or major grade-point average, and at least one term of prior experience in same laboratory in which 196A research is to be conducted. Corequisite: course 180A. Course 196A is requisite to 196B. Designed for undergraduate students who are interested in pursuing inquiry-based and hypothesis-driven research experience in laboratory of departmental or preapproved faculty mentor. Guided research course to be taken in conjunction with course 180A, followed by continuation research course 196B. Technical aspects vary depending on specific laboratory; however, all students learn how to apply scientific method: propose hypothesis, identify experiments to address hypothesis, perform experiments, and analyze results. How to record information from experimental activities into laboratory notebooks and to write research proposals. Letter grading.

**196B. Research Apprenticeship II in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Enforced requisites: courses 180A, 196A. Enforced corequisite: course 180B. Technical aspects vary depending on specific laboratory; however, all students use scientific method learned in course 196A and continue same experimental scope proposed, but with additional degree of independence in technical and intellectual aspects of research. Letter grading.

**198A. Honors Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Requisites: Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Course 198A is requisite to 198B, which is requisite to 198C. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Develop-

ment and completion of comprehensive research project and honors thesis under direct supervision of approved faculty member to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least three terms and for total of 12 units. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Requisites: course 198A, Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Development and completion of comprehensive research project and honors thesis under direct supervision of approved faculty member to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least three terms and for total of 12 units. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Individual contract required. Letter grading.

**198C. Honors Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Requisites: course 198B, Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Development and completion of comprehensive research project and honors thesis under direct supervision of approved faculty member to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least three terms and for total of 12 units. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Individual contract required. Letter grading.

**198D. Honors Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Requisites: Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Development and completion of comprehensive research project and honors thesis under direct supervision of approved faculty member to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least three terms and for total of 12 units. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Individual contract required. Letter grading.

**199. Special Studies Directed Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Preparation: submission of written proposal to department for approval by appropriate term deadline. Proposal to be developed in consultation with instructor, outlining research study to be undertaken. Requisites: Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Studies to involve laboratory research, not literature surveys or library research. At end of term culminating paper describing progress of project and signed by student and instructor must be presented to department. May be repeated for credit. Individual contract required. Letter grading.

**199A. Directed Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in major. Requisites: Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Course 199A is requisite to 199B, which is requisite to 199C, which is requisite to 199D. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only for research projects in laboratories with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Culminating research project designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least two terms and for total of at least 8 units. Individual contract required. In Progress grading (credit to be given only on completion of course 199B). Students may elect to enroll in additional research through courses 199C and 199D (letter grading). Report on progress must be presented to department each term 199A through 199D course is taken.

**199B. Directed Research in Molecular, Cell, and Developmental Biology (4)** Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in major. Requisites: course 199A, Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only for research projects in laboratories with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Culminating research project designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least two terms

and for total of at least 8 units. Individual contract required. Letter grading. Students may elect to enroll in additional research through courses 199C and 199D (letter grading). Report on progress must be presented to department each term 199A through 199D course is taken.

**199C. Directed Research in Molecular, Cell, and Developmental Biology (4)**

Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in major. Requisites: course 199B, Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only for research projects in laboratories with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Culminating research project designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least two terms and for total of at least 8 units. Students may elect to enroll in additional research through courses 199C and 199D. Report on progress must be presented to department each term 199A through 199D course is taken. Individual contract required. Letter grading.

**199D. Directed Research in Molecular, Cell, and Developmental Biology (4)**

Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in major. Requisites: course 199C, Life Sciences 3 and 4, or 7A, 7B, 7C, 23L, and 107. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only for research projects in laboratories with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Culminating research project designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least two terms and for total of at least 8 units. Students may elect to enroll in additional research through courses 199C and 199D. Report on progress must be presented to department each term 199A through 199D course is taken. Individual contract required. Letter grading.

## Graduate

**C222A. Advanced Topics in Cell and Molecular Biology: Molecular Evolution (2)** Lecture, two hours. Requisites: courses 100 or 165A, 144, Life Sciences 4 or 107. Recent developments in fields of molecular, cell, and developmental biology. Current developments in field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Original research proposal required. Concurrently scheduled with course C174A. Letter grading.

**C222B. Advanced Topics in Cell and Molecular Biology: Molecular Biology of Cell Nucleus (2)** Lecture, two hours. Requisites: courses 100 or 165A, 144, Life Sciences 4 or 107. Recent developments in fields of molecular, cell, and developmental biology. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Original research proposal required. Concurrently scheduled with course C174B. Letter grading.

**C222D. Advanced Topics in Cell and Molecular Biology: Molecular Biology of Extracellular Matrix (2)** Lecture, two hours. Requisites: courses 100 or 165A, 144. Recommended: course 138. Recent developments in fields of molecular, cell, and developmental biology. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Concurrently scheduled with course C174D. Original research proposal required. Letter grading.

**224. Molecular Basis of Vascular Biology (4)** Lecture, four hours. Requisites: Life Sciences 3, 4. Developmental and pathological aspects of vascular biology. Presentation and discussion of key questions of vascular biology with mechanistic viewpoint. Major emphasis on experimental approaches and current research in field. Introduction to several model systems along with presentation of specific topic. Basic information provided as to how this knowledge is obtained in laboratory using variety of experimental approaches and model organisms. Letter grading.

**228. Prokaryotic and Eukaryotic Gene Systems (2)** Lecture, two hours. Presentations concerning current experimental approaches in study of DNA replication, organization, transcription, and translation. S/U or letter grading.

**230B. Structural Molecular Biology (4)** (Same as Chemistry M230B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Selected topics from principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and X-ray diffraction; optical and computer filtering; three-dimensional reconstruction. S/U or letter grading.

**230D. Structural Molecular Biology Laboratory (2)** (Same as Chemistry M230D.) Laboratory, 10 hours. Corequisite: course M230B. Methods in structural molecular biology, including experiments utilizing single crystal X-ray diffraction, low angle X-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building. S/U or letter grading.

**234. Genetic Control of Development (4)** (Same as Biological Chemistry M234.) Lecture, four hours. Topics at forefront of molecular developmental biology, including problems in oogenesis and early embryogenesis, pattern formation, axis determination, nervous system development, cellular morphogenesis, and cell-cell and cell-matrix interactions. S/U or letter grading.

**C239. Molecular Basis of Plant Differentiation and Development (5)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of variety of plant systems, with focus on developing critical understanding of current experimental basis of research in this field. Concurrently scheduled with course C141. Preparation and presentation of term paper, in addition to other coursework, required of graduate students. Letter grading.

**242. Topics in Neurobiology (4)** Lecture, three hours. Requisite: course 171. Selected current problems in neurobiology discussed in depth, with emphasis on analysis of original papers. May be repeated for credit. Letter grading.

**C250. Plant Communication (4)** Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, 7C, 23L, and 107. Most people think of plants as static organisms, yet they live in world of symbiosis and community. Plants change atmosphere, enrich soil, and communicate with insects, bacteria, and each other—Earth's ultimate symbiote. Just as science has revealed over time misconceptions about how things work at deeper level, scientists and economists now recognize that beyond obvious need to grow above-ground biomass for fuel production, we must better understand how to make that biomass in sustainable manner. Introductory course in chemical ecology and how natural compounds affect gene expression. Emphasis on role of natural compounds in plant/microbe, plant/plant, and plant/herbivore. Interactions; synopsis of principles of plant defense mechanisms and responses to microbial infections. Concurrently scheduled with course C150. S/U or letter grading.

**254. Seminar: Plant Morphogenesis (2)** Seminar, two hours. S/U or letter grading.

**255. RNA Editing (4)** Lecture, two hours; discussion, one hour. Knowledge of molecular biology and molecular genetics required. Discussion of diverse set of novel RNA modification phenomena known as RNA editing. Topics include U insertion/deletion type of editing in trypanosome mitochondria, C to U substitution editing in apo B mRNA and plant mitochondria, C insertion editing in Physarum mitochondria, etc. Discussion of mechanism, function, and evolution of these phenomena. S/U grading.

**CM256. Human Genetics and Genomics (5)** (Same as Microbiology CM256.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4, and 23L, or 7A, 7B, and 7C. Application of genetic principles in human populations, with emphasis on genomics, family studies, positional cloning, Mendelian and common diseases, cancer genetics, animal models, cytogenetics, pharmacogenetics, population genetics, and genetic counseling. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

**266A. Seminar: Development, Stem Cells, and Disease Mechanisms (2)** Seminar, two hours. Limited to graduate students. Advanced course based on research papers on fundamental cellular mechanisms governing development and disease. Disease results from genetically determined or acquired deficits in cell and molecular processes; analysis of these processes in context of normal development indicates ways of dealing with corresponding disease. S/U grading.

**266B. Seminar: Development, Stem Cells, and Disease Mechanisms (2)** Seminar, two hours. Limited to graduate students. Advanced course based on research papers on fundamental cellular mechanisms governing development and disease. Disease results from genetically determined or acquired deficits in cell and molecular processes; analysis of these processes in context of normal development indicates ways of dealing with corresponding disease. S/U grading.

**266C. Seminar: Development, Stem Cells, and Disease Mechanisms (2)** Seminar, two hours. Limited to graduate students. Advanced course based on research papers on fundamental cellular mechanisms governing development and disease. Disease results from genetically determined or acquired deficits

in cell and molecular processes; analysis of these processes in context of normal development indicates ways of dealing with corresponding disease. S/U grading.

**272. Stem Cell Biology and Regenerative Medicine (4)** (Same as Pathology M272.) Lecture, two hours; discussion, two hours. Designed for graduate students. Presentation of current knowledge of embryonic and adult stem cells and factors that regulate their growth and development. Major emphasis on how advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Bioethical and legal issues related to stem cell research. S/U or letter grading.

**276. Seminar: Molecular Genetics (2)** Seminar, two hours. Topics vary each term. S/U or letter grading.

**277. Seminar: Genetics (2)** Seminar, two hours. S/U or letter grading.

**278. Seminar: Molecular Genetics of Development (2)** Seminar, two hours. Designed for graduate students. Topics vary from year to year, with focus on establishment of position and pattern during embryogenesis by interaction of signal transduction systems and transcription factors. S/U or letter grading.

**281. Seminar: Molecular Biology (2)** Seminar, two hours. S/U or letter grading.

**283. Seminar: Topics in Cell Biology (2)** Seminar, two hours. Discussion of various topics on biology of eukaryotic cells. Topics vary from year to year and include bioenergetics, motility, organelle DNA, membrane structure and function, oncogenic transformation, nuclear organization and function. S/U or letter grading.

**284. Seminar: Structural Macromolecules (2)** Seminar, one hour; discussion, three hours. Presentation and discussion of current topics in extracellular active structural macromolecules—their synthesis, structure, and roles in cell and developmental biology. Letter grading.

**286. Seminar: Plant Development (2)** Seminar, one hour; discussion, two hours. Preparation: one plant physiology course and at least one advanced undergraduate or graduate plant development or biochemistry course. Seminar on specific topics in plant development. Content varies each term. S/U grading.

**289. Current Topics in Plant Molecular Biology (2)** Discussion, one hour. Recent research developments in field of plant molecular biology. Opportunities for graduate students to discuss individual research work. S/U grading.

**292. Seminar: Molecular Evolution (2)** Seminar, three hours. Detailed analysis of current understanding of evolution of molecular sequences and structures. Letter grading.

**295. Seminar: Molecular, Cell, and Developmental Biology (2)** Seminar, two hours. In-depth surveys of recent developments in molecular, cell, and developmental biology research. Reading and presentation of primary research articles to learn to critically evaluate research papers and to organize and present seminars on specific research topics. S/U or letter grading.

**296. Advanced Topics in Molecular, Cellular, and Developmental Biology (2)** Discussion, three hours. Advanced study and analysis of current topics in cell, molecular, and developmental biology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

**297. Advances in Molecular Analysis of Plant Development and Plant/Microbe Interactions (2)** Discussion, two hours. Recent advances in plant molecular biology, with emphasis on control of gene expression both during plant development and in plant/microbe interactions. S/U grading.

**495. Preparation for Teaching Molecular, Cell, and Developmental Biology in Higher Education (2)** Seminar, two hours. Designed for graduate students. Study of problems and methodologies in teaching molecular, cell, and developmental biology, including workshops, seminars, apprentice teaching, and peer observation. S/U grading.

**596. Directed Individual (or Tutorial) Studies (2 to 12)** Tutorial, to be arranged. S/U grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. May not be applied toward MA or PhD course requirements. S/U grading.

**598. MA Thesis Research and Writing (2 to 12)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Writing (2 to 12)** Tutorial, to be arranged. S/U grading.

# Molecular, Cellular, and Integrative Physiology

## Molecular, Cellular, and Integrative Physiology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Graduate

**214. Research Grant Writing in Biomedical Sciences (4)** Lecture, three hours. Designed for Molecular, Cellular, and Integrative Physiology program students. Training in designing, writing, and evaluating research project and fellowship grants. How grant applications are structured and what features contribute to grant application success. How individual research project grants (RO1) and exploratory/development research grants (R21) to National Institutes of Health (NIH) are structured and differ. How applications for predoctoral fellowships from NIH (F31) and American Heart Association (AHA) are organized. Development and writing of students' own RO1, R21, F31, or AHA grant application. Letter grading.

**248. Seminar: Molecular Basis of Physiological Function (2)** Seminar, two hours. Application of molecular approaches in investigation of physiological processes of biological systems. Critical thinking and experimental design strategies learned through primary literature review and in-class presentation/discussion. Letter grading.

**249. Seminar: Pathogenic Mechanisms in Muscle Disease (2)** Seminar, two hours. Recent advances have been made in genetic identification of molecular basis of muscle disease, and some mechanisms involved have been elucidated. Focus on muscle diseases in which substantial mechanistic information has been obtained, including particular cellular locations and diseases associated with those locations. Topics include Duchenne muscular dystrophy, congenital muscular dystrophy, limb girdle dystrophy, Ullrich myopathy, and other forms of genetically inherited muscle disease. S/U grading.

**250. Current Topics in Molecular, Cellular, and Integrative Physiology (2)** Seminar, two hours. Designed for molecular, cellular, and integrative physiology students. Reading, analysis, critique, and discussion of current research literature in field of molecular, cellular, and integrative physiology. Student presentation of assigned paper. Variable topics. May be repeated for credit. S/U grading.

**251. Integrative Genomics for Studying Complex Diseases (2)** Seminar, two hours. Requisite: course 252A. Lectures and supervised student presentations to offer graduate students opportunity to acquire deep understanding of advanced integrative genomic approaches and how these approaches can be applied to help understand molecular basis of diverse complex diseases. Topics include transcriptomics, genetics, functional genomics, network biology, and high-level integration. Letter grading.

**252. Molecular Mechanisms of Human Diseases I (6)** Lecture, four hours; discussion, two hours. Preparation: prior satisfactory molecular and cell biology coursework. Fundamental concepts and methodologies in modern biology and medicine, with emphasis on systems-based research and mechanistic understanding to human diseases and therapies as they apply to neural, immune, cardiovascular, and metabolic systems. Reading, review, and discussion of primary research literature addressing fundamental concepts and methodologies in related topic areas of human biology and diseases. Emphasis on development of scientific skills in critical analysis, knowledge acquisition and self-learning, as well as effective articulation in scientific debate and exchange. Letter grading.

**262. Molecular Mechanisms of Human Diseases II (6)** Lecture, four hours; discussion, two hours. Preparation: prior satisfactory molecular biology coursework. Requisite: course 252. Fundamental concepts and methodologies in modern biology and medicine, with emphasis on systems-based research and mechanistic understanding to human diseases and therapies as they apply to neural, cardiovascular, and metabolic systems. Includes reading, review, and discussion of primary research literature addressing fundamental concepts and methodologies in related topic areas of human biology and diseases. Emphasis on development of scientific skills in critical analysis, knowledge acquisition and self-learning, and effective articulation in scientific debate and exchange. Letter grading.

**290A. Tutorials: Cellular and Molecular Physiology (4)** Tutorial, two hours. Discussion, analysis, and critique of original research literature. Letter grading.

**290B. Tutorials: Biophysics (4)** Tutorial, two hours. Discussion, analysis, and critique of original research literature. Letter grading.

**290C. Tutorials: Integrative and Comparative Physiology (4)** Tutorial, two hours. Discussion, analysis, and critique of original research literature. Letter grading.

**296. Research Seminar (2)** Seminar, to be arranged. Review of literature, discussion of original research, and analysis of current topics in molecular, cellular, and integrative physiology. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

**596. Directed Individual Study or Research (2 to 10)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations (2 to 10)** Tutorial, to be arranged. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

**599. Research for PhD Dissertation (2 to 10)** Tutorial, to be arranged. May not be applied toward PhD course requirements. May be repeated for credit. S/U grading.

# Music

## Music Courses

### Lower Division

**3. Preparatory Music Theory (4)** Lecture, four hours; laboratory, one hour. Course in music fundamentals, including musicianship, theory, and terminology. Letter grading.

**6A. Introduction to Global Musicianship (2)** (Same as Ethnomusicology M6A and Musicology M6A.) Laboratory, four hours. Course M6A is enforced requisite to M6B, which is enforced requisite to M6C. Students must receive grade of C– or better to proceed to next course in sequence. Introduction to global musicianship through in-depth exploration of basic musical elements through performance, aural skills, and active listening. Engages with melodic information represented in solfège, harmonic information in Nashville number system, and rhythmic information in both Western notation and digital audio workstation grid visualization. Letter grading.

**6B. Introduction to Musicianship (2)** (Same as Ethnomusicology M6B and Musicology M6B.) Laboratory, four hours. Preparation: placement examination. Enforced requisite: course M6A with grade of C– or better. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

**6C. Introduction to Musicianship (2)** (Same as Ethnomusicology M6C and Musicology M6C.) Laboratory, four hours. Preparation: placement examination. Enforced requisite: course M6B with grade of C– or better. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

**7. Understanding Movie Music (4)** Lecture, four hours; outside study, eight hours. Musical experience helpful, but not required. Brief historical survey of film music, with strong emphasis on recent development: Japanese animation, advertising, and MTV, as well as computer tools and digital scoring methods. Designed to inspire and inform those interested in movie music. Offered in summer only. P/NP or letter grading.

**14. Introduction to Classical Music (5)** (Same as Musicology M3.) Lecture, four hours; discussion, one hour. Survey of music of Western classical tradition, with emphasis on historical context, musical meanings, and creation of tradition itself. P/NP or letter grading.

**15. Art of Listening (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Acquisition of listening skills through direct interaction with live performance, performers, and composers. Relationship of listening to theoretical, analytical, historical, and cultural frameworks. Music as aesthetic experience and cultural practice. P/NP or letter grading.

**16. Hollywood Musical and American Dream (4)** Lecture, three hours; discussion, one hour. Examination of composers, writers, and filmmakers whose creative efforts changed how world came to view American dream. Full features and music clips illustrate American life as seen through Hollywood musicals. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Music Theory I (3)** Lecture, four hours. Preparation: passing score on departmental examination. Course 20A is enforced requisite to 20B, which is enforced requisite to 20C. Students must receive grade of C or better to proceed to next course in sequence. Theory: species counterpoint through fifth species; description of triads and inversions. P/NP or letter grading.

**20B. Music Theory II (3)** Lecture, four hours. Enforced requisite: course 20A with grade of C or better. Theory: diatonic harmony through secondary dominants and diminished sevenths; modulations to dominant and relative keys; writing of four-part chorales; style composition in baroque dance forms; introduction to figured bass notation. P/NP or letter grading.

**20C. Music Theory III (3)** Lecture, four hours. Enforced requisite: course 20B with grade of C or better. Theory: chromatic harmony including development of tonality, 1800 to 1850; appropriate analysis and style composition. P/NP or letter grading.

**21A. Project Approach to Music Theory I (3)** Lecture, four hours. Requisite: passing score on departmental examination. Course 21A is enforced requisite to 21B, which is enforced requisite to 21C. Students must receive grade of C or better to proceed to next course in sequence. Theory fundamentals through project approach. Letter grading.

**21B. Project Approach to Music Theory II (3)** Lecture, four hours. Enforced requisite: course 21A with grade of C or better. Students must receive grade of C or better to proceed to next course in sequence. Theory fundamentals through project approach. Letter grading.

**21C. Project Approach to Music Theory III (3)** Lecture, four hours. Enforced requisites: courses 21A, 21B with grades of C or better. Theory fundamentals through project approach. Letter grading.

**30A. History, Listening, and Survey of Piano Literature I: Baroque and Classical (2)** Seminar, two hours. Strongly recommended for undergraduate piano and music education majors with piano as their main instrument. Survey course covering standard piano literature and composers through listening and reading. Letter grading.

**30B. History, Listening, and Survey of Piano Literature II: Romantic, Impressionistic, 20th-Century, and Contemporary (2)** Seminar, two hours. Strongly recommended for undergraduate piano and music education majors with piano as their main instrument. Survey course covering standard piano literature and composers through listening and reading. Letter grading.

**50. Alexander Technique (2)** Lecture, four hours; outside preparation and practice, two hours. Limited to Ethnomusicology, Music, and Musicology majors. Introduction to principles of Alexander technique. Study of musician's postural attitude at instrument, including physical movement as application of theory. Designed to help instrumentalists and vocalists prevent injuries and performance anxiety. May be repeated with consent of instructor. Letter grading.

**60A. Instrumental Studio: Flute (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60B. Instrumental Studio: Oboe (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60C. Instrumental Studio: Bassoon (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60D. Instrumental Studio: Clarinet (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60E. Instrumental Studio: Saxophone (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60F. Instrumental Studio: French Horn (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60G. Instrumental Studio: Trumpet (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must

perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60H. Instrumental Studio: Trombone (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60I. Instrumental Studio: Tuba/Euphonium (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60J. Instrumental Studio: Percussion (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60K. Instrumental Studio: Violin (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60L. Instrumental Studio: Viola (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60M. Instrumental Studio: Cello (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60N. Instrumental Studio: String Bass (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60O. Instrumental Studio: Harp (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60P. Instrumental Studio: Guitar (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60Q. Instrumental Studio: Lute (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60R. Instrumental Studio: Viola da Gamba (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60S. Instrumental Studio: Piano (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must per-



form in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60T. Instrumental Studio: Organ (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**60U. Instrumental Studio: Harpsichord (2)** Studio, one hour; outside practice, six to eight hours. Limited to freshman/sophomore Music Performance majors and junior Music Education and Music Composition majors. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**61A. Voice Studio (2)** Studio, one hour; outside practice, six to eight hours. Corequisite: course 61B or 61C. Limited to lower-division Music Performance majors specializing in voice and Music Education majors. Emphasis on repertoire and improving performance. Grades are assigned by studio instructor in conjunction with student's vocal coach for fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 12 units. P/NP or letter grading.

**61B. Voice Coaching (1)** Studio, one hour; outside practice, three hours. Corequisite: course 61A. Limited to lower-division Music Performance majors specializing in voice and Music Education majors. Emphasis on repertoire and improving performance. Grades are assigned by studio instructor in conjunction with student's vocal coach for fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 6 units. P/NP or letter grading.

**61C. Voice Coaching for Music Education SpecialistS. (0.5)** Studio, 30 minutes; outside practice, 90 minutes. Corequisite: course 61A. Limited to lower-division Music Education majors. Emphasis on repertoire and improving performance. Grades are assigned by studio instructor in conjunction with student's vocal coach for fall and winter quarters and by jury examination in spring quarter. May be repeated for maximum of 3 units. P/NP or letter grading.

**66. Composition Studio (2)** Studio, one hour per week to be arranged with instructor; outside study, five hours. Enforced requisites: courses 20A, 20B, 20C. Limited to Music Composition students and designed for sophomores. One-on-one composition lessons with assignments and compositions tailored to student progress and level of achievement. Lessons address counterpoint, voice-leading, harmonic and melodic construction, orchestration, form, texture, style, notation, and performance feasibility. May be repeated twice for credit. P/NP or letter grading.

**74A. Introduction to Singing Diction: English and Italian (2)** Studio/demonstration/performance, 90 minutes; outside study, four to five hours. Introduction to basics of singing diction and development of English and Italian skills for beginning students. Development of International Phonetic Alphabet (IPA) transcription skills, along with addressing issues of translation. Exploration of variety of vocal repertoire, including opera, art songs, early music, recitative, and folk songs. Transcription, translation, speaking, and singing of texts from pieces assigned in course, as well as from repertoire being prepared for juries. P/NP or letter grading.

**74B. Introduction to Singing Diction: German (2)** Studio/demonstration/performance, 90 minutes; outside study, four to five hours. Introduction to basics of singing diction and development of German skills for beginning students. Development of International Phonetic Alphabet (IPA) transcription skills, along with addressing issues of translation. Exploration of variety of vocal repertoire, including opera, art songs, early music, recitative, and folk songs. Transcription, translation, speaking, and singing of texts from pieces assigned in course, as well as from repertoire being prepared for juries. P/NP or letter grading.

**74C. Introduction to Singing Diction: French (2)** Studio/demonstration/performance, 90 minutes; outside study, four to five hours. Introduction to basics of singing diction and development of French skills for beginning students. Development of International Phonetic Alphabet (IPA) transcription skills, along with addressing issues of translation. Exploration of variety of vocal repertoire, including opera, art songs, early music, recitative, and folk songs. Transcription, translation, speaking, and singing of texts from pieces assigned in course, as well as from repertoire being prepared for juries. P/NP or letter grading.

**80A. Beginning Keyboard (4)** Laboratory, five hours; preparation/practice, seven hours. Simple keyboard skills together with basic aspects of music theory and its practical application to keyboard: sight-reading, tonality,

chords, scales, cadences, simple compositions, and improvisations. May be repeated for credit without limitation. Offered in summer only. P/NP or letter grading.

**80B. Intermediate Keyboard (4)** Laboratory, five hours; preparation/practice, seven hours. Enforced requisite: course 80A. Review of basic keyboard concepts, with focus on developing comprehensive keyboard musicianship ranging from music theory, sight-reading, composing, improvising, analysis of form, study of musical terms and notations, chords, scales, cadences, transposing, and ear training. Offered in summer only. P/NP or letter grading.

**80E. Sight Singing and Ear Training (4)** Laboratory, four hours. Designed for students of all ages and genres to improve their ability to sing by ear and/or read vocal music. Class is conducted as much as possible without instrumental accompaniment (i.e., a cappella), and special emphasis is placed on acquisition of skills related to relative pitch and recognition of intervals (i.e., relationships between pitches). Letter grading.

**80F. Beginning Guitar Class (4)** Laboratory, five hours; preparation/practice, seven hours. Introduction to guitar techniques, accompanying, and arranging for guitar; coverage of note reading and tablature. May be repeated for credit without limitation. Offered in summer only. P/NP or letter grading.

**80V. Vocal Technique for Beginners (4)** Laboratory, six hours; preparation/practice, six hours. Voice instruction for singers at beginning to intermediate level. Exploration of fundamentals of vocal technique, including overview of basics of proper breath control, resonance, care of voice, diction, and interpretation. Beginning vocal repertoire used as vehicle for understanding these concepts. May be repeated for credit without limitation. Offered in summer only. P/NP or letter grading.

**80W. Woodwind Technique for Beginners (4)** Laboratory, six hours; preparation/practice, six hours. Woodwind instruction designed to give students knowledge of fundamental concepts and techniques of saxophone, clarinet, oboe, bassoon, and flute. Offered in summer only. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**90T. Early Music Ensemble (4)** (Same as Musicology CM90T.) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**102A. Advanced Musicianship I (2)** Laboratory, four hours. Enforced requisites: courses M6A, M6B, M6C. Course 102A is enforced requisite to 102B, which is enforced requisite to 102C. Students must receive a grade of C- or better to proceed to next course in sequence. Advanced-level sight singing, sight reading, rhythm, melodic and harmonic dictation, tonal and modal improvisation, keyboard skills. Letter grading.

**102B. Advanced Musicianship II (2)** Laboratory, four hours. Enforced requisites: courses M6A, M6B, M6C, 102A (102A with grade of C- or better). Students must receive a grade of C- or better to proceed to next course in sequence. Advanced-level sight singing, sight reading, rhythm, melodic and harmonic dictation, tonal and modal improvisation, keyboard skills. Letter grading.

**102C. Advanced Musicianship III (2)** Laboratory, four hours. Enforced requisites: courses M6A, M6B, M6C, 102A, 102B (102A, 102B with grades of C- or better). Advanced-level sight singing, sight reading, rhythm, melodic and harmonic dictation, tonal and modal improvisation, keyboard skills. Letter grading.

**103. Creating Musical Community (4)** (Same as Ethnomusicology M103, Global Jazz Studies M103, and Musicology M103.) Seminar, four hours; discussion, one hour. Limited to school of music majors. Faculty and students make music together in different modes. Students learn certain repertoire, refine it, and bring it to concert performance. Students critically engage musical literacies and notion of social contract that forms basis of musical notation.

Drawing from American music folk game traditions, highlights complex history of this country and way in which entire body is used as resource when instruments are unavailable. Letter grading.

**104A. Modal Counterpoint (3)** Lecture, three hours. Requisites: courses 102C and 111C, or 120C. In-depth exploration of styles and techniques of counterpoint of 15th and 16th centuries through writing and analysis of important forms of period, including species, canon, free counterpoint, cantus, firmus, point of imitation, motet, ricercare, etc. Letter grading.

**104B. Special Topics in Counterpoint (3)** Lecture, three hours. Requisites: courses 102C and 111C, or 120C. In-depth exploration of polyphonic styles and textures since 1750, with emphasis on late-19th- and 20th-century modes of expression, through writing and analysis. Letter grading.

**106A. Orchestration I (4)** Discussion, three hours. Requisites: courses 120C (accelerated section), 123C. Ranges and characteristics of instruments, with exercises in scoring. P/NP or letter grading.

**106B. Orchestration II (4)** Discussion, three hours. Requisites: courses 106A, 120C (accelerated section), 123C. Scoring and analysis for ensembles and full orchestra. P/NP or letter grading.

**C109A. Oboe Reed Making (1)** Activity, one hour; outside study, two hours. Enrollment by consent of instructor. Introduction and overview of oboe reed making, including hands on training with tools and techniques necessary to develop and maintain oboe reeds. May be repeated for credit. May be concurrently scheduled with course C209A. P/NP or letter grading.

**C109B. Bassoon Reed Making (1)** Activity, one hour; outside study, two to three hours. Enrollment by consent of instructor. Introduction, overview, and hands-on training with tools and techniques necessary to develop and maintain bassoon reeds. May be repeated for credit. May be concurrently scheduled with course C209B. P/NP or letter grading.

**110A. Learning Approaches in Music Education (4)** Lecture, two hours; activity, two hours; outside study, eight hours. Enforced requisite: course 20A. Introduction to music education by development of concepts, attitudes, and skills necessary to teach music and philosophical, historical, cultural, and psychological foundations of music education, with emphasis on learning theories and psychology of music learning. Contextualization of concepts by engaging in nonnotational modes of music learning, including systematic aural transmission and informal learning. Letter grading.

**110B. Musicality and Creativity in Childhood (4)** Lecture, two hours; activity, two hours; outside study, eight hours. Requisites: courses 20A, 20B, 20C, 110A, 120A, 120B, 120C. Preparation of music education students for teaching music at preschool and elementary school levels. Development of understanding of developmental characteristics, diverse cultures, and learning needs of children and design of effective instructional strategies that are age-appropriate and responsive to children's background. Focus on practice of student-centered curriculum where students are active learners and teachers are facilitators to become proficient in providing children with music learning environment that is conducive to optimal growth in their musicality and creativity. Frequent field visits. Letter grading.

**110C. Comparative Study of Choral Music Education (4)** Lecture, two hours; activity, one hour; fieldwork, one hour; outside study, eight hours. Requisites: courses 20A, 20B, 20C, 110A, 119A, 120A, 120B, 120C. Preparation of students for teaching choral music at middle and high school levels. Development of understanding of developmental characteristics, diverse cultures, and learning needs of adolescents and design of effective instructional strategies that are age-appropriate and responsive to students' background. Diverse practices and learning processes in choral music of American and world serve as basis of comparative study, with emphasis on comprehensive music education through performance. Frequent field visits. Letter grading.

**110D. Comparative Study of Instrumental Music Education (4)** Lecture, two hours; activity, one hour; fieldwork, one hour; outside study, eight hours. Enforced requisites: courses 20A, 20B, 20C, 110A, 120A, 120B, 120C. Critical study and analysis of philosophy, history, organization, curriculum, and literature of music programs for elementary and secondary instrumental music instruction in traditional and nontraditional settings. Development of strategies and techniques to teach music in group settings. Completion of capstone project in form of electronic portfolio demonstrating mastery of program learning outcomes. Frequent field visits. Letter grading.

**111A. Music Theory through Improvisation (3)** Lecture, four hours. Requisites: courses M6A, M6B, M6C, and 20A, 20B, and 20C, or 21A, 21B, and 21C. Course 111A is enforced requisite to 111B, which is enforced requisite to 111C. Students must receive grade of C or better to proceed to next course in sequence. Theory through improvisation, technology, and arranging for ensembles. Letter grading.

**111B. Music Creation and Analysis through Technology (3)** Lecture, four hours. Requisites: courses M6A, M6B, M6C, 111A (111A with grade of C or better), and 20A, 20B, and 20C, or 21A, 21B, and 21C. Students must receive grade of C or better to proceed to next course in sequence. Theory through improvisation, technology, and arranging for ensembles. Letter grading.

**111C. Arranging Music for Educational Settings (3)** Lecture, four hours. Requisites: courses M6A, M6B, M6C, 111A, 111B (111A and 111B with grades of C or better), and 20A, 20B, and 20C, or 21A, 21B, and 21C. Theory through improvisation, technology, and arranging for ensembles. Letter grading.

**112. Guided Field Experiences in Music Education (1)** Field studies, three hours. Initial field experiences for students preparing to teach and earn single subject certification in music. Novice teachers work under direct guidance of UCLA music education faculty members and practicing public school instructor to develop and deliver instruction in K-12 settings. P/NP grading.

**114A. Study of Instrumental Techniques: High Strings (1)** Studio, three hours. Requisite or corequisite: course 20A. Applied studies in basic performance techniques and tutorial materials. May be repeated once for credit. Letter grading.

**114B. Study of Instrumental Techniques: Low Strings (1)** Studio, three hours. Requisite or corequisite: course 20A. Applied studies in basic performance techniques and tutorial materials. May be repeated once for credit. Letter grading.

**114C. Vocal Techniques for Music Education I (1)** Studio, two hours; outside study, one hour. Introduction to basic vocal techniques, breath and body, vocal mechanism, health and care of voice, and instructional techniques. Letter grading.

**114D. Vocal Techniques for Music Education II (1)** Studio, two hours; outside study, one hour. Requisite or corequisite: course 114C. Introduction to art of teaching voice, focusing on vocal instruction in choral classroom. Focus on application of vocal techniques to choral music teaching at K-12 school settings. Letter grading.

**114J. Piano Skill in Classroom (1)** Activity, two hours. Designed for Music Education majors. Development of piano skills and competencies that enable students to function successfully in general music, instrumental ensemble, and choral ensemble classrooms. Letter grading.

**115A. Study of Instrumental Techniques: Woodwinds (2)** Studio, four hours; outside study, two hours. Applied studies in basic performance techniques and tutorial materials designed to give music education students knowledge to teach basic instrument concepts. Letter grading.

**115B. Study of Instrumental Techniques: Brass (2)** Studio, four hours; outside study, two hours. Applied studies in basic performance techniques and tutorial materials designed to give music education students knowledge to teach basic instrument concepts. Letter grading.

**115C. Study of Instrumental Techniques: Percussion (2)** Studio, four hours; outside study, two hours. Applied studies in basic performance techniques and tutorial materials designed to give music education students knowledge to teach basic instrument concepts. Letter grading.

**116. Introduction to Conducting (2)** Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A. Fundamentals of conducting, including basic skills, techniques, analysis, and repertoire. P/NP or letter grading.

**117. Study and Conducting of Instrumental and Choral Literature (2)** Lecture, three hours. Requisite: course 116. Study and practice of conducting both instrumental and choral repertoire. In addition to further development of conducting gestures, focus on score study techniques, rehearsal techniques, style, and interpretation as applied to choral and instrumental repertoire. Letter grading.

**C118A. Advanced Choral Conducting (2)** Lecture, one hour; studio, two hours. Requisites: courses 116, 117. Conducting basics, baton technique, beat patterns, dynamics, score preparation and analysis. May be repeated once for credit. Concurrently scheduled with course C218A. P/NP or letter grading.

**C118B. Choral Techniques and Methods (2)** Lecture, one hour; studio, two hours. Requisites: courses 116, 117, C118A. Vocal and choral pedagogy, vocalizing and warm-up techniques, diction, and rehearsal and audition techniques. May be repeated once for credit. Concurrently scheduled with course C218B. P/NP or letter grading.

**119. Jazz and Technology Pedagogy (3)** Lecture, two hours; activity, two hours; outside study, five hours. Enforced requisites: courses 20A, 20B, 20C, 110A, 120A, 120B, 120C. Foundations for teaching jazz by development of understanding of curriculum, rehearsal techniques, improvisation, and uses of technology in jazz education. Technology understanding includes basic concepts of sequencing, composition, ensemble performance, and creation of multimedia presentations using tablet (iPad) technology. Letter grading.

**120A. Music Theory IV (4)** Lecture, four hours; discussion, four hours. Preparation: passing score on departmental first-year examination. Requisite: course 20C with grade of C (2.0) or better. Theory: baroque counterpoint including chorale prelude; two-part invention; exposition and first modulation of three-part invention; canonic principles; analysis of inventions, canons, and fugues. Musicianship: sight-singing of extended chromatic melodies; advanced harmonic dictation (diatonic and chromatic); keyboard harmonization of modulating melodies; elementary score reading. P/NP or letter grading.

**120B. Music Theory V (4)** Lecture, four hours; discussion, four hours. Requisite: course 120A with grade of C (2.0) or better. Theory: advanced chromatic harmony including development of harmony from 1850; analytical projects; style composition. Musicianship: advanced score reading; advanced harmonic dictation; preparation for departmental examination. P/NP or letter grading.

**120C. Music Theory VI (4)** Lecture, four hours; discussion, two hours; listening, two hours. Requisite: course 120B with grade of C (2.0) or better. 20th-century harmonic language, including nonfunctional harmony, polytonality, free atonality, serialism, and minimalism. P/NP or letter grading.

**121. Special Topics in 20th-Century Music (4)** Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. In-depth study of certain aspects of 20th-century music ranging from individual composers and schools to ideological or stylistic concerns. May be repeated once for credit. P/NP or letter grading.

**122. Speculative Music Theory (4)** Seminar, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Techniques of tonal coherence studied through analysis and compositional exercises in styles of given periods. May be repeated once for credit. P/NP or letter grading.

**124A. Scoring for Symphony Orchestra (4)** Discussion, three hours. Requisites: courses 106B, 120C (accelerated section), 123C. Practical applications in scoring for symphony orchestra. Preparation and production of parts and full scores. At least one reading by UCLA Philharmonia Orchestra scheduled. Letter grading.

**124B. Scoring for Wind Ensemble (4)** Discussion, three hours. Requisites: courses 106B, 120C (accelerated section), 123C. Practical applications in scoring for large wind ensembles. Preparation and production of score and parts. May include percussion. At least one reading by UCLA Wind Ensemble scheduled. Letter grading.

**124C. Scoring and Arranging for Choral Ensemble (4)** Discussion, three hours. Requisites: 106B, 120C (accelerated section), 123C. Practical applications in scoring and arranging for choral ensembles, including a capella as well as chorus with instruments. Preparation and production of score and parts. At least one reading by UCLA Chorale or other choral group scheduled. Letter grading.

**131. Development of Latin Jazz (4)** (Same as Ethnomusicology M131 and Global Jazz Studies M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

**134. Introduction to Armenian Music (4)** (Same as Armenian M134 and Ethnomusicology M134.) Lecture, three hours. Some amount of formal music study and experience as vocalist or instrumentalist desirable but not essential. Introduction to history, tradition, and scope of music of Armenia. Focus on number of different genres and approaches, and interactions between music and culture, society, and history. P/NP or letter grading.

**140A. History and Analysis of Western Music to 1700 (5)** Lecture, four hours; discussion, one hour. Requisite: course M6C. Students must receive grade of C or better to proceed to next course in sequence. Survey of Western music from its beginnings to 1700; examination of representative compositions within their cultural contexts and development of analytical methods appropriate to each repertory. Letter grading.

**140B. History and Analysis of Western Music, 1700 to 1800 (5)** Lecture, four hours; discussion, one hour. Enforced requisite: course 140A with grade of C or better. Survey of Western music from 1700 to 1890; examination of representative compositions within their cultural contexts and development of analytical methods appropriate to each repertory. Letter grading.

**140C. History and Analysis of Western Music, 1890 to Present (5)** Lecture, four hours; discussion, one hour. Enforced requisite: course 140B with grade of C or better. Survey of Western music from 1890 to present; examination of representative compositions within their cultural contexts and development of analytical methods appropriate to each repertory. Letter grading.

**C150. Keyboard Skills for Pianists (2)** Activity, two hours; outside study, four hours. Applied music course with focus on necessary skills for piano performance. Areas include sight playing, score reading, transposition, figured bass, harmonization, improvisation, score reduction, and ensemble issues. Concurrently scheduled with course C450. P/NP or letter grading.

**C155. Instrumental and Piano Duo Repertoire (2)** Activity, two hours; outside study, four hours. Performance-based course that develops repertoire and experience in collaborative performance for pianists and instrumentalists. Activities include weekly score preparation, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Regular coaching with faculty members, weekly performance workshop, and rehearsals. Concurrently scheduled with course C455. P/NP or letter grading.

**C158A. Advanced Vocal Repertoire, Diction, and Interpretation: English (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. May be repeated for maximum of 8 units. Concurrently scheduled with course C458A. P/NP or letter grading.

**C158B. Advanced Vocal Repertoire, Diction, and Interpretation: French (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. May be repeated for maximum of 8 units. Concurrently scheduled with course C458B. P/NP or letter grading.

**C158C. Advanced Vocal Repertoire, Diction, and Interpretation: German (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. May be repeated for maximum of 8 units. Concurrently scheduled with course C458C. P/NP or letter grading.

**C158D. Advanced Vocal Repertoire, Diction, and Interpretation: Italian (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. May be repeated for maximum of 8 units. Concurrently scheduled with course C458D. P/NP or letter grading.

**C158E. Advanced Vocal Repertoire, Diction, and Interpretation: Spanish (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. May be repeated for maximum of 8 units. Concurrently scheduled with course C458E. P/NP or letter grading.

**C158F. Advanced Vocal Repertoire, Diction, and Interpretation: Russian (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with faculty members, weekly performance class, and rehearsals. May be repeated for maximum of 8 units. Concurrently scheduled with course C458F. P/NP or letter grading.

**C158G. Advanced Vocal Repertoire, Diction, and Interpretation: Other Languages (2)** Activity, two hours; outside study, four hours. Enforced requisite: course 74C. Performance-based course that develops repertoire and experience in collaborative performance for pianists and vocalists. Activities include text and score preparation, diction, weekly rehearsals, regular coaching, and performances for lessons, juries, recitals, master classes, auditions, and other related activities. Intensive diction study incorporated. Regular coaching with







**167T. Capstone Instrumental Recital: Organ (2)** Studio, one hour; outside practice, six to eight hours. Limited to senior Music Performance majors. Planning and completion of senior capstone recital comprising 45 to 55 minutes of music, including printed program. Preparation for capstone recital, as well as individual and group lessons. Recital is videotaped, archived, and evaluated by jury; written feedback is provided to student within two weeks of recital. Letter grading.

**167U. Capstone Instrumental Recital: Harpsichord (2)** Studio, one hour; outside practice, six to eight hours. Limited to senior Music Performance majors. Planning and completion of senior capstone recital comprising 45 to 55 minutes of music, including printed program. Preparation for capstone recital, as well as individual and group lessons. Recital is videotaped, archived, and evaluated by jury; written feedback is provided to student within two weeks of recital. Letter grading.

**168. Capstone Voice Recital (2)** Studio, one hour; outside practice, six to eight hours. Corequisite: course 161B. Limited to senior Music Performance majors. Planning and completion of senior capstone recital comprising 45 to 55 minutes of music, including printed program. Preparation for capstone recital, as well as individual and group lessons. Recital is videotaped, archived, and evaluated by jury; written feedback is provided to student within two weeks of recital. Letter grading.

**169. Capstone Composition Recital (2)** Studio, one hour; outside study, five hours. Enforced requisites: courses 124A or 124B or 124C, and 166 (at least 10 units). Limited to senior Music Composition majors. Planning and completion of senior capstone recital comprising at least 30 minutes of original music with program notes. Preparation for capstone recital, as well as composition lessons. Recital is videotaped, archived, and evaluated by jury; written feedback is provided to student within two weeks of recital. Letter grading.

**C171. Selected Topics in Keyboard Literature (2)** Lecture, two hours. Enforced corequisite: one course from 60S, 60T, 60U, 160S, 160T, 160U. In-depth study of selected topics in keyboard literature, concentrating on problems of performance through analysis, historical and comparative studies, and actual performances by participants. May be repeated for credit. May be concurrently scheduled with course C271. P/NP or letter grading.

**C175A. Chamber Ensembles: Brass (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485A. P/NP or letter grading.

**C175B. Chamber Ensembles: Guitar (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485B. P/NP or letter grading.

**C175C. Chamber Ensembles: Piano (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485C. P/NP or letter grading.

**C175D. Chamber Ensembles: Percussion (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485D. P/NP or letter grading.

**C175E. Chamber Ensembles: Strings (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485E. P/NP or letter grading.

**C175F. Chamber Ensembles: Woodwinds (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485F. P/NP or letter grading.

**C175G. Chamber Ensembles: Flux Contemporary (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature

appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C485G. P/NP or letter grading.

**C176. Electronic Music Composition (4)** Lecture, three hours; laboratory, three hours. Preparation: advanced experience and accomplishment in serious composition (art music), two years of music theory. Limited to music composition majors. Exercises in electroacoustic orchestration, meta-pitch composition, notation software (Sibelius), sequencing and film scoring software (Logic), text collages (ProTools), and final project. May be concurrently scheduled with course C226. P/NP or letter grading.

**CM182. Music Industry (4)** (Same as Ethnomusicology CM182, Musicology CM186, and Music Industry M182.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM282. Letter grading.

**C185A. UCLA Chorale (2)** Activity, four hours. Preparation: audition. Large mixed ensemble performing choral music of all periods appropriate for concert choral ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C480A. P/NP or letter grading.

**C185B. Chamber Singers (2)** Activity, four hours. Preparation: audition. Designed primarily for Music Performance majors. Select mixed ensemble performing chamber choral music of all periods. May be repeated for credit without limitation. May be concurrently scheduled with course C480B. P/NP or letter grading.

**C185C. Opera Workshop (2)** Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete operas, as well as repertoire, stage movement, and foreign language diction coaching. May be repeated for credit without limitation. May be concurrently scheduled with course C480C. P/NP or letter grading.

**C185D. Symphony Orchestra (2)** Activity, three hours. Preparation: audition. Group performance of symphonic orchestral literature. May be repeated for credit without limitation. May be concurrently scheduled with course C480D. P/NP or letter grading.

**C185E. Philharmonia (2)** Activity, six hours. Preparation: audition. Designed primarily for Music Performance majors. Group performance of symphonic orchestral literature, as well as orchestral accompaniment for operatic and major choral works. May be repeated for credit without limitation. May be concurrently scheduled with course C480E. P/NP or letter grading.

**185F. Symphonic Band (2)** Activity, two hours. Preparation: audition. Group performance of instrumental music scored for band. May be repeated for credit without limitation. P/NP or letter grading.

**C185G. Wind Ensemble (2)** Activity, six hours. Preparation: audition. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C480G. P/NP or letter grading.

**185H. Marching and Varsity Bands (2)** Activity, six hours. Preparation: audition. Group performance of special band arrangements for football and basketball games as well as special events. May be repeated for credit without limitation. P/NP or letter grading.

**C186A. Piano/Keyboard Accompanying (2)** Activity, four hours; outside study, two hours. Collaboration with large ensembles, instrumentalists, and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for maximum of 12 units. Concurrently scheduled with course C484A. P/NP or letter grading.

**C186B. Guitar Accompanying (2)** Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. Concurrently scheduled with course C484B. P/NP or letter grading.

**C186C. Harp Accompanying (2)** Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. Concurrently scheduled with course C484C. P/NP or letter grading.



**C188. Seminar: Special Topics in Music (4)** (Formerly numbered 188.) Seminar, three hours. Exploration of topics in music through variety of approaches that may include projects, performances, readings, discussions, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. May be concurrently scheduled with C292. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**195. Community or Corporate Internships in Music. (2 to 4)** Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with supervising instructor and submit periodic reports of their work experiences. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

**197. Individual Studies in Music. (2, 4)** Tutorial, one hour. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in music, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter (research project) required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

## Graduate

**M201. Repertory and Analysis (2)** (Same as Musicology M201.) Seminar, two hours. Requisite or corequisite: Musicology 200A. Exploration of defined repertory through readings and analysis. Specific topics vary. May be repeated for credit. S/U grading.

**202. Analysis for Performers (4)** Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of analytical techniques and approaches required for professional performers, including phrase structure, harmonic rhythm and prolongation, small and large forms, theories of musical coherence, and understanding of styles. Letter grading.

**203. Notation and Performance (4)** Lecture, three hours; outside study, nine hours. Designed for graduate music students. Survey analysis of evidence performers use to make their interpretive decisions in performance of vocal and instrumental music of European tradition. Topics include editions, treatises, tempo indications, expressive notation, use and influence of recordings, composer-performer relationship, and nonstandard notation. Letter grading.

**204. Music Bibliography for Performers (4)** Lecture, three hours; outside study, nine hours. Designed for graduate music performance students. Survey of general bibliographic techniques in music, with emphasis on materials for performing musicians. Letter grading.

**C209A. Oboe Reed Making (1)** Activity, one hour; outside study, two hours. Enrollment by consent of instructor. Introduction and overview of oboe reed making, including hands on training with tools and techniques necessary to develop and maintain oboe reeds. May be repeated for credit. May be concurrently scheduled with course C109A. S/U or letter grading.

**C209B. Bassoon Reed Making (1)** Activity, one hour; outside study, two to three hours. Enrollment by consent of instructor. Introduction, overview, and hands-on-training with tools and techniques necessary to develop and maintain bassoon reeds. May be repeated for credit. May be concurrently scheduled with course C109B. S/U or letter grading.

**C218A. Advanced Choral Conducting (2)** Lecture, one hour; studio, two hours. Requisites: courses 116, 117. Conducting basics, baton technique, beat patterns, dynamics, score preparation and analysis. May be repeated once for credit. Concurrently scheduled with course C118A. Letter grading.

**C218B. Choral Techniques and Methods (2)** Lecture, one hour; studio, two hours. Requisites: courses 116, 117, C218A. Vocal and choral pedagogy, vocalizing and warm-up techniques, diction, and rehearsal and audition techniques. May be repeated once for credit. Concurrently scheduled with course C118B. Letter grading.

**C226. Electronic Music Composition (4)** Lecture, three hours; laboratory, three hours. Preparation: advanced experience and accomplishment in serious composition (art music), two years of music theory. Designed for graduate students. Limited enrollment. Exercises in electroacoustic orchestration, meta-pitch composition, notation software (Sibelius), sequencing and film scoring software (Logic), text collages (ProTools), and final project. May be concurrently scheduled with course C176. S/U or letter grading.

**251. Seminar: Orchestration (4)** Seminar, three hours. Advanced orchestration for large ensembles; analysis of orchestral literature. Letter grading.

**252. Seminar: Composition (4)** Seminar, three hours. Compositional projects for varying acoustic instrumental and vocal ensembles. Students expected to perform their compositions from sketches at piano or present notation files of work-in-progress with playback file, where appropriate. Performance of completed works in graduate composition concerts by UCLA student performers. S/U or letter grading.

**253. Seminar: Special Topics in Composition and Theory (4)** Seminar, three hours. Intensive exploration of specialized aspects of composition. May be repeated for credit. S/U or letter grading.

**254. Advanced Music Analysis: Pre-Tonal Music (4)** Seminar, three hours. Designed to provide graduate composition students with in-depth exposure to complex and rich works of late Middle Ages through dawn of baroque era. Exploration of analytical techniques and methods not commonly used in analysis of works of tonal and post-tonal periods, and approaches to musical structures used by composers before modern tonal harmonic syntax had fully developed. Letter grading.

**255. Advanced Music Analysis: Tonal Music (4)** Seminar, three hours. Discussion of theoretic approaches to and analysis of selected works of common practice era. Analysis of assigned pieces using various theoretic approaches discussed and presentation of analyses in class. Letter grading.

**256. Advanced Music Analysis: Post-Tonal Music (4)** Seminar, three hours. Designed for graduate music students. Discussion of theoretic approaches to and analysis of selected works of 20th or 21st century. Analysis of assigned pieces using various theoretic approaches discussed and presentation of analyses in class. Letter grading.

**260A. Seminar: Composition for Motion Pictures and Television (6)** Seminar, three hours; laboratory, three hours. Practical experience in composing for commercial movies. Difference between underscore and source music and discussion of surrealistic effect when they merge, as in MTV, dream sequences, or montages. Study of three principal areas of filmmaking—preproduction, production (shooting), and postproduction. Examples from classic movies and discussion of their scores. Composition of actual cues for acoustic instruments coordinated to picture to be term project. Separate cues involve dialogue, melodrama, comedy, chase, memory montage, and tension. Letter grading.

**260B. Seminar: Composition for Motion Pictures and Television (6)** Seminar, three hours; laboratory, three hours. Focus on task of completing one entire score for television episode or original student film. Discussion of recent television shows. Composition of one original title song and short cues to someone else's song required. Term assignment involves student orchestra recording to picture, designed to approximate actual conditions of completing professional Hollywood assignment, from spotting to scoring. Letter grading.

**261A. Problems in Performance Practices: Medieval (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**261B. Problems in Performance Practices: Renaissance (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**261C. Problems in Performance Practices: Baroque (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**261D. Problems in Performance Practices: Classical (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**261E. Problems in Performance Practices: Romantic (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**261F. Problems in Performance Practices: Contemporary (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**261J. Problems in Performance Practices: Jazz (4)** Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**266. Graduate Composition Studio (4)** Studio, one hour arranged with instructor; outside study, 11 hours. Limited to graduate composition students. One-on-one composition lessons, with assignments and compositions tailored to each student's progress and level of achievement, addressing counterpoint, voice-leading, harmonic and melodic construction, orchestration, form, texture, style, notation, and performance feasibility of compositions worked on at advanced level. Presentation of at least one composition composed during course in graduate composition concert during academic year. May be repeated for credit without limitation. S/U or letter grading.

**270A. Seminar: Music Education—History (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**270B. Seminar: Music Education—Non-Western Musics (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**270C. Seminar: Music Education—Curriculum Innovations (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**270D. Seminar: Music Education—Tests and Measurements (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**270E. Seminar: Music Education—Choral Literature (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**270F. Seminar: Music Education—Instrumental Literature (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**270G. Seminar: Music Education—General Topics (6)** Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading.

**C271. Selected Topics in Keyboard Literature (2)** Lecture, two hours. Enforced corequisite: course 460S or 460T or 460U. In-depth study of selected topics in keyboard literature, concentrating on problems of performance through analysis, historical and comparative studies, and actual performances by participants. May be repeated for credit. May be concurrently scheduled with course C171. S/U or letter grading.

**CM282. Music Industry (4)** (Same as Ethnomusicology CM288 and Musicology CM288.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM182. Letter grading.

**290. Composition Forum (2)** Seminar, two hours. Weekly forum to present professional composers of range of mediums, including large ensemble vocal and/or instrumental works, chamber music, electronic music, and film/television, as guest lecturers. Letter grading.

**C292. Seminar: Special Topics in Music (4)** (Formerly numbered 292.) Seminar, three hours. Exploration of topics in music through variety of approaches that may include projects, performances, readings, discussions, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. May be concurrently scheduled with C188. S/U or letter grading.

**330. Introduction to Orff Schulwerk (2)** Lecture, 10 hours; discussion, five hours; laboratory, 15 hours. Intended for teachers of music, church musicians, and music therapists who have had little or no previous experience with Orff Schulwerk. Introduction to Orff Schulwerk, including history, philosophy, and teaching processes of this approach to music instruction for children. Offered in summer only. S/U or letter grading.

**331A. Orff Schulwerk Training Course: Level I (Beginning) (4)** Lecture, four hours; discussion, one hour. Requisite: course 330. Course 331A is requisite to 331B, which is requisite to 331C. In-depth course in teaching of Orff Schulwerk approach to music instruction for children. Students who successfully complete each course are eligible for certification at that level through American Orff Schulwerk Association. S/U or letter grading.

**331B. Orff Schulwerk Training Course: Level II (Intermediate) (4)** Lecture, four hours; discussion, one hour. Requisite: course 331A. In-depth course in teaching of Orff Schulwerk approach to music instruction for children. Students who successfully complete each course are eligible for certification at that level through American Orff Schulwerk Association. S/U or letter grading.

**331C. Orff Schulwerk Training Course: Level III (Advanced) (4)** Lecture, four hours; discussion, one hour. Requisite: course 331B. In-depth course in teaching of Orff Schulwerk approach to music instruction for children. Students who successfully complete each course are eligible for certification at that level through American Orff Schulwerk Association. S/U or letter grading.

**341. Conducting for High School and College Band/Wind Ensemble Teachers (2)** Lecture, two and one half hours. Comprehensive view of current trends in band/wind ensemble programs, including nonverbal communication, conducting, and rehearsal techniques. Study of new and recently published literature and discussions of administration of band/wind ensemble programs. May be repeated for credit without limitation. S/U or letter grading.

**342. Contemporary Marching Band (1)** Lecture, two hours. Innovative approaches to marching band programs for high school and college teachers, including creative approaches to marching and drill design and use of microcomputers. May be repeated for credit without limitation. S/U or letter grading.

**343. Effective and Creative String Teaching (2)** Lecture, 24 hours. Comprehensive course for teachers of string classes and string orchestras at elementary, junior high, and high school levels. Topics include development of instructional techniques for violin, viola, cello, and bass; critical examination of current pedagogical materials; and reading sessions of recently published music for string orchestra. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

**343L. Effective and Creative String Teaching Laboratory (1)** Laboratory, 12 hours. Exploration of string orchestra, ensemble, and chamber music literature appropriate for elementary, junior high, and high schools. Examination of this literature in reading and discussion sessions. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

**345. Symposium on Art of Choral Music (2)** Lecture, two and one half hours. Symposium for college, high school, and junior high school choral directors on development of practical techniques for solving real challenges in choral conducting and teaching. Topics include innovative choral methods, choral conducting, vocal pedagogy, voice classification, and survey of standard and current choral literature. S/U or letter grading.

**350A. Introduction to Computer-Assisted Instruction of Music (2)** Lecture, three hours; laboratory, two hours. Introduction to instructional uses of computers in music classroom, with emphasis on practical information necessary to intelligently purchase and implement microcomputers in schools. Courseware to be experienced and reviewed, jargon defined and illustrated, and practical hands-on experience obtained. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

**350B. Exploration of MIDI Computer Resources: Keyboards and Synthesizers (2)** Lecture, two hours; laboratory, three hours. Creative use of MIDI-based synthesizers under computer control. Exploration of available hardware resources allied with various software sequencing packages. Use of software for computer-based music printing. Hands-on experience. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

**371. Marching Band in Secondary Education (2)** Lecture, two hours. Study of contemporary marching band as component of music curriculum in secondary education, including current approaches, practices, and problems associated with marching bands, as well as historical perspective. S/U or letter grading.

**401. New Music Forum (2)** Tutorial/laboratory, two hours. Preparation: one year of graduate study in music at UCLA. Interactive course in preparation and performance of premiere work especially composed for graduate performer or performers by graduate composer at UCLA. Letter grading.



**460R. Graduate Instrumental Studio: Viola da Gamba (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading.

**460S. Graduate Instrumental Studio: Piano (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading.

**460T. Graduate Instrumental Studio: Organ (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading.

**460U. Graduate Instrumental Studio: Harpsichord (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading.

**460V. Graduate Instrumental Studio: Fortepiano (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading.

**461A. Graduate Voice Studio (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Corequisite: course 461B. Limited to graduate voice students. Voice techniques and health, including breath control, pitch accuracy, range, resonance, and flexibility. Letter grading.

**461B. Graduate Voice Coaching (1)** Studio, one hour; outside practice, three hours. Corequisite: course 461A. Limited to graduate voice students. Emphasis on repertoire and improving performance. Grades are assigned by studio instructor in conjunction with student's vocal coach for fall and winter quarters and by jury examination in spring quarter. Letter grading.

**466. Graduate Instruction in Performance: Jazz (6)** Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading.

**469. Instrumental Pedagogy (4)** Lecture, three hours; outside study and preparation, nine hours. Preparation: advanced proficiency on one musical instrument. Designed for graduate music students. Study of art of teaching musical instruments, including discussions of philosophy of teaching, learning process itself, and teaching of musical interpretation. Individualized study of various considerations, such as physical/technical aspects and pedagogical repertoire, peculiar to teaching student's primary instrument. Letter grading.

**471. Vocal Pedagogy (4)** Lecture, three hours; discussion, one hour. Preparation: advanced proficiency in voice. Designed for graduate music students. Study of teaching techniques for voice, including thorough investigation of vocal mechanism and its use, plus study of noted teachers of past and present. Further emphasis on practical teaching experience in class. Letter grading.

**472. Master Class in Opera (6)** Studio, three hours; outside study, 15 hours. Limited to graduate performance students. Intensive study and preparation of opera literature. May be repeated for credit. S/U or letter grading.

**475. Master Class in Conducting (6)** Studio, three hours; outside study, 15 hours. Limited to graduate performance students. Intensive study and preparation of musical literature in specialized field of conducting. May be repeated for credit. S/U or letter grading.

**C480A. UCLA Chorale (2)** Activity, four hours. Preparation: audition. Large mixed ensemble performing choral music of all periods appropriate for concert choral ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C185A. S/U or letter grading.

**C480B. Chamber Singers (2)** Activity, four hours. Preparation: audition. Select mixed ensemble performing chamber choral music of all periods. May be repeated for credit without limitation. May be concurrently scheduled with course C185B. S/U or letter grading.

**C480C. Opera Workshop (2)** Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete operas, as well as repertoire, stage movement, and foreign language diction coaching. May be repeated for credit without limitation. May be concurrently scheduled with course C185C. S/U or letter grading.

**C480D. Symphony Orchestra (2)** Activity, four hours. Preparation: audition. Group performance of symphonic orchestral literature. May be repeated for credit without limitation. May be concurrently scheduled with course C185D. S/U or letter grading.

**C480E. Philharmonia (2)** Activity, six hours. Preparation: audition. Group performance of symphonic orchestral literature, as well as orchestral accompaniment for operatic and major choral works. May be repeated for credit without limitation. May be concurrently scheduled with course C185E. S/U or letter grading.

**C480G. Wind Ensemble (2)** Activity, six hours. Preparation: audition. Designed for MM and DMA students. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C90G. S/U or letter grading.

**C484A. Piano/Keyboard Accompanying (2)** Activity, four hours; outside study, two hours. Collaboration with large ensembles, instrumentalists, and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for maximum of 12 units. Concurrently scheduled with course C186A. S/U or letter grading.

**C484B. Guitar Accompanying (2)** Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. Concurrently scheduled with course C186B. S/U or letter grading.

**C484C. Harp Accompanying (2)** Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. Concurrently scheduled with course C186C. S/U or letter grading.

**C485A. Chamber Ensembles: Brass (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175A. S/U or letter grading.

**C485B. Chamber Ensembles: Guitar (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175B. S/U or letter grading.

**C485C. Chamber Ensembles: Piano (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175C. S/U or letter grading.

**C485D. Chamber Ensembles: Percussion (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175D. S/U or letter grading.

**C485E. Chamber Ensembles: Strings (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175E. S/U or letter grading.

**C485F. Chamber Ensembles: Woodwinds (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175F. S/U or letter grading.

**C485G. Chamber Ensembles: Flux Contemporary (1)** Activity, one to two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Total of 12 units may be applied toward degree requirements for music performance students. May be concurrently scheduled with course C175G. S/U or letter grading.

**486. Jazz Ensemble (2)** Studio, six hours. Designed for MM students in jazz performance area of study. Group performance of jazz repertoire. May be repeated for credit without limitation. Letter grading.

**495. Introductory Practicum for Teaching Apprentices in Music (2)** Eight weekly two-hour seminar sessions, plus intensive training session during Fall Quarter registration week. Preparation: appointment as teaching apprentice in Music Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching music at college level. May not be applied toward degree requirements. S/U grading.

**496. Technology Seminar (2)** Seminar, two hours; laboratory, one hour; outside study, three hours. Introduction to departmental and campuswide technology resources, exploration of applications of technology in education, and development of means of using technology to assess and document teaching competence. S/U grading.

**595A. Preparation of Master's Recital (6)** Tutorial, three hours. Limited to graduate master's program in performance students. Intensive study and preparation of final master's recital, normally taken in lieu of 400-level lessons during final recital term. S/U grading.

**595B. Preparation of Final Doctoral Recital (6)** Tutorial, three hours. Preparation: advancement to candidacy for DMA degree. Intensive study and preparation of final DMA recital, normally taken in lieu of 400-level lessons during final recital term. S/U grading.

**596A. Directed Individual Studies in Orchestration and Composition (2 to 6)** Tutorial, to be arranged. Only 4 units may be applied toward MA or MM degree requirements. May be repeated for credit. S/U or letter grading.

**596C. Directed Individual Studies in Music Education (2 to 6)** Tutorial, to be arranged. Only 4 units may be applied toward MA or MM degree requirements. May be repeated for credit. S/U or letter grading.

**596D. Directed Individual Studies in Performance Practices (2 to 12)** Tutorial, to be arranged. Only 4 units may be applied toward MA or MM degree requirements. May be repeated for credit. S/U or letter grading.

**597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examinations (2, 4)** Tutorial, to be arranged. S/U grading.

**598. Guidance of MA Thesis (4 to 12)** Tutorial, to be arranged. Only 4 units may be applied toward degree requirements. May be repeated for credit. S/U grading.

**599. Guidance of PhD or DMA Dissertation (4 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

# Music Industry

## Music Industry Courses

### Lower Division

**1. Music Industry Forum (1)** Lecture, one hour. Introduction to consideration of contemporary issues in global music industry through interaction with instructor, guest lecturers. May be repeated for credit. P/NP grading.

**2. Music Industry Fundamentals (4)** (Formerly numbered 102.) Lecture, three hours; discussion, one hour. Introduction to current music industry. Overview of career paths, monetization strategies, organizational behavior, and entrepreneurial thinking. Designed to serve as gateway for music industry degree programs. Students familiarize themselves with basic functions of industry that are covered in greater detail in upper-division coursework. Letter grading.

**4. Reel Beatles: Understanding the Beatles through Film and Media (5)** Lecture, three hours; discussion, one hour. Designed to tell story of the Beatles through visual media. Covers over 80 years of their lives, their journey, and enormous impact they had on world. Focus on how the Beatles were seen on television and in film. Examination of their most impactful filmed performances, movies they made as group, their promotional videos, their landmark broadcast moments, documentaries made about them while still they were still together, television interviews they did after group broke up, best documentaries made about them since 1970, and official multi-part documentary history of the Beatles they did together as well as Peter Jackson's 2021 documentary. Letter grading.

**5. Finding Your Voice: Mastering Narrative(s) of Self, Music Business, and Beyond (4)** Seminar, three hours. Aspiring musicians and future music industry professionals are empowered to harness their inner voices, develop confidence, and find/use their voice from interpersonal relationships to public speaking forums. Students learn how to define narratives in order to promote themselves (and others) while navigating the complexities of the music industry. Students manifest their own personal and professional aspirations, practice pitching themselves and others effectively, and cultivate the resilience needed to thrive in the music industry and in life. Industry-tested tools are shared for overcoming negative self-talk; dealing with ambiguity and how to get the job; learning to communicate in a wide range of personal and professional scenarios; making deals through effective negotiation. Letter grading.

**6. Good Vibrations (The Beach Boys) (5)** Lecture, three hours; discussion, one hour. Study of the Beach Boys' evolution through television appearances and documentaries. Includes narrative lectures and exclusive interviews conducted by David Leaf with the Beach Boys colleagues, the recorded legacy of the band, documentaries and other filmed documentation of the group, and excerpts from the literature (both popular and scholarly) on Brian Wilson and the Beach Boys. Letter grading.

**10A. Finance and Accounting in Music Industry I (4)** Lecture, three hours. Introduction to how money works in both nonprofit and for-profit music industries, including practical management of funds, budgeting (including tour budgets), fee scales, servicing agreements, issues pertaining to trade unions, and various modes of accounting for salary, royalties, local and international taxation, streaming revenues, licensing payments, and other income and expenditure. Letter grading.

**10B. Finance and Accounting in Music Industry II (4)** Lecture, three hours. Requisite: course 10A. Introduction to how money works in both nonprofit and for-profit music industries, including practical management of funds, budgeting (including tour budgets), fee scales, servicing agreements, issues pertaining to trade unions, and various modes of accounting for salary, royalties, local and international taxation, streaming revenues, licensing payments, and other income and expenditure. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. How Music Works I (4)** Lecture, four hours; recitation, one hour. General introduction to music in technological era of mass culture, and reconsideration of music theory for global 21st century music professional. How organized sound can become source of pleasure, mode of communication, strategy of resistance, and (sometimes) source of intellectual property. No particular style of music or type of notation is privileged, and no traditional musical training is required. Letter grading.

**20B. How Music Works II (4)** Lecture, four hours; recitation, one hour. Requirement: course 20A. General introduction to music in technological era of mass culture, and reconsideration of music theory for global 21st century music professional. How organized sound can become source of pleasure, mode of communication, strategy of resistance, and (sometimes) source of intellectual property. No particular style of music or type of notation is privileged, and no traditional musical training is required. Letter grading.

**25. Fostering Musical Creativity: Artists and Repertoires (4)** Lecture, four hours; outside study, eight hours. Beginning from psychology of creativity (James, Dewey, Csikszentmihalyi) and management literature, exploration of creative process and how to foster and control it; and collaborative process with producer, manager, labels, and other executives. Topics include path of artist; recognizing creative individuality; structure and freedom; collaboration and how teams work, including inside and outside concert hall and recording studio; negotiation and career-building; feed-back and evaluation. Special attention to musical creativity and its rhythms. Letter grading.

**29. Docs that Rock: Music Documentary in History and Practice (5)** Lecture, three hours; discussion, one hour. Close look at history of popular music documentaries and goals, methods, and challenges of making them. Consideration of what makes for successful (or unsuccessful) music documentaries. Viewed through very specific focus of story and storytelling. Students may develop their own documentary project as part of coursework. P/NP or letter grading.

**55. Songwriters on Songwriting (5)** Lecture, three hours; discussion, one hour. With special focus on songwriting renaissance of rock era, examination of work of important songwriters of post-World War II generation (circa 1952-1994) and those they have influenced. Practical industry guidance from current and noteworthy practitioners. Coverage of songwriting, arrangement and record production, music publishing, and record business in 20th and 21st centuries. Guest music industry professionals demonstrate individual creative processes and discuss their paths to songwriting and their place in world of music. Course is not workshop or tutorial on how to write songs. (See course 112.) P/NP or letter grading.

**70. Apprenticeship in Music Industry (2, 4)** Tutorial, to be arranged. Under general supervision of UCLA faculty member, students work with various UCLA faculty and staff in production of live concert events, in UCLA recording studio, or as part of media production team led by UCLA faculty or staff. Written evaluation of apprenticeship work is provided by those supervising it directly. May be repeated for credit. Individual contract with workplace supervisor required. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**91A. Rock/Pop Studio Ensemble I (2)** Activity, five hours. Course 91A is requirement to 91B. Performance-based introduction to popular music styles, forms, and competencies through immersion in studio performance techniques. Students play in groups to develop ensemble, create material, and produce recordings. P/NP or letter grading.

**91B. Rock/Pop Studio Ensemble II (2)** Activity, five hours. Requirement: course 91A. Performance-based introduction to popular music styles, forms, and competencies through immersion in studio performance techniques. Students play in groups to develop ensemble, create material, and produce recordings. P/NP or letter grading.

**95. Introduction to Community or Corporate Internships in Music Industry (4)** Tutorial, eight hours. Entry-level community or corporate internship for lower-division students who have completed 90 or fewer units. Internship in supervised setting in community organization, agency, or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Seminar in Music Industry (4)** Seminar, four hours; outside study, eight hours. Required of Music Industry minors. Introduction to intellectual and theoretical frameworks that form Music Industry minor and that scholars of music and music industries have developed to analyze, understand, and per-

haps judge what happens out there, including how music business works in financial, legal, global, and artistic terms, how music technologies of recording, reproduction, and consumption operate, and how basic music science from acoustics to brain biology to music perception affects how music is produced and heard. Letter grading.

**103. Music, Mind, and Brain (4)** (Same as Neuroscience M170.) Seminar, three hours; outside study, nine hours. Multidisciplinary approach to understanding brain mechanisms mediating music perception, performance, and cognition. Students' natural interest in music serves as springboard for learning basic concepts about theories of mind, and how brain works to determine perception of harmony and rhythm, emotion and meaning in music, and musical creativity. Designed to help students understand methodologies currently used to investigate brain-behavior correlates. Broad understanding of research topics in cognitive neuroscience; introduction to fundamental principles in neurophysiology, psychophysiology, and neuroanatomy. Letter grading.

**104A. Music and Law (4)** Seminar, three hours; outside study, nine hours. Fundamentals of American law as it applies to entertainment business, with special attention to music and its use in film, television, and new media. Legal relationships in entertainment business and basic business practices. Exploration of legal aspects of process of producing works in entertainment field, from acquisition of rights and talent through production and distribution. Letter grading.

**104B. Legal and Business Aspects of Music Publishing (4)** Seminar, three hours. Exploration of legal and business aspects surrounding creation and distribution of musical compositions in today's evolving marketplace. Detailed exploration of rights afford songwriters under Copyright Act of 1976, and practical review of ability of these authors to control and monetize these rights. Review and practical analysis of agreements involved from inception to global exploitation of compositions including co-writer agreements, registration of songs, administration agreements, public performance agreements, and sale of catalogs. Exploration of financial implications for songwriters of these agreements. Letter grading.

**104C. Legal and Business Aspects of Sound Recordings (4)** (Formerly numbered 104B.) Seminar, three hours; outside study and research, nine hours. Exploration of legal and business aspects of production and distribution of sound recordings. More detailed practical focus on legal aspects of recording process itself, from initial assembly of material to final distribution and collection of royalties, with material covered also relevant to audio-visual recordings. Introductory presentation on contract, copyright, and trademark law as background to step-by-step process of securing agreements necessary for production and commercial distribution of recordings. Letter grading.

**107A. Engineering and Production Fundamentals (4)** Lecture, two hours; studio, one hour; outside study, nine hours. Introduction to basic acoustic principles, practical techniques, and working procedures for equipment used in contemporary music production, including microphones, mixers, recorders, synthesizers, and sequencers. Basic sound processing operations (equalization, compression, distortion, reverberation). Operating principles of most popular systems of music production software and hardware. P/NP or letter grading.

**107B. Engineering and Production for Musicians (4)** Studio, four hours; outside study, eight hours. Enforced requirement: course 107A. Examination of selected technological elements in greater depth than in course 107A, while applying established concepts to broad range of creative scenarios and applications. Basic familiarity with standard audio workstation software in use in music industry and introduction to foundational theoretical concepts in audio engineering, psychoacoustics, mixing, mastering, and sound recording. Development of critical listening skills through in-class and assigned listening. Letter grading.

**108. Founding and Sustaining Performing Arts Organizations (4)** Seminar, four hours. Examination of process of founding performing arts organizations, beginning with inspiration to do so, clarifying organization mission, and mechanics of becoming nonprofit corporations; issues of funding, press relations, finding appropriate venues, developing audience; mechanics, legal and routine, of running arts businesses; establishing relationships with other organizations in field; issues of making and distributing recordings. Students create on paper one performing arts organization, including developing mission statement, preparing bylaws, and writing sample grant proposals. Letter grading.

**110. Music Business Now (4)** Seminar, three hours. Hands-on introduction to business of music, with emphasis on marketing and media. Students work in teams to develop strategies for real-world artists. P/NP or letter grading.

**111A. Rock/Pop Studio Ensemble I (4)** (Formerly numbered 111.) Studio, four hours; outside study, four hours. Performance-based introduction to popular music styles, forms, and competencies through immersion in studio perfor-

mance techniques. Students play in groups to develop ensemble, create material, and produce recordings. May be repeated for credit. P/NP or letter grading.

**111B. Rock/Pop Studio Ensemble II (4)** Studio, four hours; outside study, four hours. Requisite: course 111A. Performance-based introduction to popular music styles, forms, and competencies through immersion in studio performance techniques. Students play in groups to develop ensemble, create material, and produce recordings. May be repeated for credit. P/NP or letter grading.

**112A. Introduction to Songwriting (4)** Seminar, four hours; outside study, eight hours. Learning and employment of craft of songwriting. Examination, analysis, and implementation of song structure, lyric and melody writing, arranging, orchestrating, and recording techniques. Evolution of songwriting in modern society since advent of phonograph player/radio; how songs and society affect and reflect one another; how this has informed songs and songwriters. Letter grading.

**112B. Advanced Songwriting (4)** Seminar, four hours; outside study, eight hours. Enrollment by consent of instructor. Seminar in contemporary songwriting practices for intermediate to advanced songwriter. Emphasis on collaboration, flexibility, and working within teams to master specific songwriting challenges. All genres and styles of music accommodated. Letter grading.

**112C. Songwriter's Workshop. (1, 2)** Seminar, three hours. Enforced requisite: course 112A or 112B or permission of instructor. Provides supportive community for songwriters to work together under the supervision of Music Industry faculty. Students present their songs in progress, form teams for collaboration, and may undertake professionalization exercises like portfolio construction, writing on speculation, writing to synchronization, etc. Main focus is individual musical growth. May be repeated for credit. P/NP or letter grading.

**113A. Music Supervision (4)** (Formerly numbered 113.) Seminar, three hours. Introduction to role of music supervisor and creative, logistical, and budget considerations of music supervision. Development of theoretical and practical knowledge, interaction with professionals in field, and practice negotiating music requests and clearances. Letter grading.

**113B. Advanced Music Supervision (4)** Seminar, three hours. Recommended requisite: course 113A. Further development of theoretical and practical knowledge of music supervision, interaction with professionals in field, and practice negotiating music requests and clearances. Advanced issues in music supervision, including multi-episode series, in-studio music departments, managing extensive catalogs, etc. Letter grading.

**114. Concerts and Venues: Producing Special Events and Live Concerts (4)** Seminar, three hours. Behind-scenes overview of how to produce successful live show, special event, or concert, from concept to execution, including master planning, venue production, concept and design, operations, seating, talent, security, and budget. Students acquire specialized knowledge and principles involved in staging any kind of event in stadiums, concert halls, arenas, exhibitions, and art installations in venues worldwide. Includes guest speakers and site visits to major shows, venues, and production facilities. Letter grading.

**115A. Art of Music Production I (4)** (Formerly numbered 115.) Lecture, three hours; studio, two hours. Exploration of techniques, methods, and process of music production and larger issues in art of making music. Students learn how to foster and capture performance and emotion in music through variety of methods and tools, including artistic direction in studio and choices made in sound, arrangement, and application of technology. Letter grading.

**115B. Art of Music Production II (4)** Lecture, three hours; studio, two hours. Requisite: course 115A. Further exploration of techniques, methods, and process of music production and larger issues in art of making music. Students learn how to foster and capture performance and emotion in music through variety of methods and tools including artistic direction in studio and choices made in sound, arrangement, and application of technology. Critical listening skills. Introduction to contemporary technologies including spatial audio, multi-channel sound, etc. Letter grading.

**116A. Digital Production and Beat Design I (4)** Seminar, four hours. Course 116A is requisite to 116B. Recommended: course 107A. Introduction to contemporary digital production through mastery of beat-driven musical textures. Use of digital audio workstations, plugins and hardware, creation of live performance rigs controlling sound and vision. Students develop proficiency in key styles of beat-oriented popular music, including hip-hop, electronic dance music, pop, and experimental rhythm and blues. Principles of analog and digital synthesis, creation of sound libraries, composing for film and digital media. Sound amplification and integration of live performance with digital sound. Electronically submitted final project. P/NP or letter grading.

**116B. Digital Production and Beat Design II (4)** Seminar, four hours. Requisite: course 116A. Introduction to contemporary digital production through mastery of beat-driven musical textures. Use of digital audio workstations, plugins and hardware, creation of live performance rigs controlling sound and vision. Students develop proficiency in key styles of beat-oriented popular music, including hip-hop, electronic dance music, pop, and experimental rhythm and blues. Principles of analog and digital synthesis, creation of sound libraries, composing for film and digital media. Sound amplification and integration of live performance with digital sound. Electronically submitted final project. P/NP or letter grading.

**117. The Disc Jockey as Performer (4)** Studio, six hours. Study of the art of disc jockey (DJ) performance and the deliberate practice of live mixing with vinyl records, digital CDJ decks, software, and controllers. Exploration also of music curation, performance dynamics, incorporation of instruments, live musicians, sampling, and visual elements. Students are prepared for DJ performances in various settings, from clubs and festivals to virtual platforms. Additional topics include DJ history and technology, technical aspects of performing, dance-floor psychology, reading energy, and stem mixing. May include university-sponsored club or special performance venue, and guest DJ speakers from various musical backgrounds and genres. Letter grading.

**118. Post-Production Audio for Film, Television, and Visual Media (4)** Seminar, three hours. Contemporary film sound, musical composition, and post-production audio. Principles of soundtrack editing, processing of vocals, and post-production sound design. Surround and theater sound mixing, game sound, and virtual reality. Final project ideally involves collaboration with UCLA student filmmakers and is electronically designed and submitted. Letter grading.

**122. Digital Marketing and Promotion (4)** Seminar, three hours; outside study, nine hours. Record labels, streaming services, social media, synch, merchandise, entrepreneurship, and other avenues of coordinated and independent marketing and promotion. Letter grading.

**124A. Music Industry Entrepreneurship (4)** Seminar, three hours. Principles of entrepreneurship and fundamental business strategies approached through case studies and project-based group assignments. How to read market trends, put together business plans, raise investment funds. Students help manage speaker series with music industry entrepreneurs. Letter grading.

**124B. Music Industry Entrepreneurship and Innovation (4)** (Formerly numbered 124.) Seminar, four hours. Principles of entrepreneurship and fundamental business strategies approached through case studies and project-based group assignments. Students develop business plans, pitch them, and build out infrastructure for startups that focus on technology and innovation in music industry. Students are encouraged to make use of resources at MusicBiz, MEIEA, and startup.ucla.edu. Letter grading.

**126. Artist Management (4)** Seminar, four hours. Holistic principles of artist management including articulating and moving forward artistic vision, coordinating multiple revenue streams, psychology of managing artists and creative mind, and ethical practices in artist management. Basics of negotiation and compensation; artist promotion; career shaping; legal aspects of artist management; contemporary Internet-based strategies for artist promotion; merchandising and monetizing fandom. Students work to discover, sign, and break local artists across numerous genres. Letter grading.

**129. Global Music Industry (4)** (Formerly numbered 128.) Seminar, three hours. Introduction to global music industry through contemporary research, case studies, and trends. Survey of developed and emerging markets; regional marketing and moving beyond U.S.-based thinking; multi-national approaches to career building. Special topics may include international standards for linguistic issues including publishing, censoring, and dubbing. Letter grading.

**131. DIY: Punk Organizing as Social Justice (4)** Seminar, three hours. Recommended requisite or corequisite: Musicology 13. Do it yourself (DIY) as practical alternative mode of organization for social justice activism and nonprofit arts collectives. Ethical issues in capitalism, labor issues, politics. How to work with gender, class, race, and orientation. Students interface with existing radical social justice/art organizations in Los Angeles area, and strive to facilitate real change. Letter grading.

**132. Music and Activism (4)** Seminar, three hours; outside study, nine hours. History and practice of music in and as activism. Artist-run labels and collectives, social justice organizing and media, art and activism in both entrepreneurial and non-profit settings. Students develop and execute music-related business plan with social awareness and potential for measurable impact. P/NP or letter grading.



**134. Psychology and Music Management (4)** Seminar, three hours. Theoretical and sociological approach to psychology of artistry, fame, and music management, including effects of fame, addiction, fandoms, and managing legacies. Focus on careers of significant musical artists according to instructor specialty. Letter grading.

**144. Music Journalism (4)** Seminar, four hours. Students learn core journalism writing and reporting techniques—objectivity, neutrality, fact-checking, interviewing, active voice writing, editing—and apply those techniques to producing publishable works of journalism that report on music and music industry. Discussion and exploration of music and music industry landscape as journalists with probing curiosity, critical thinking, reporting, and analysis. Story ideas are pitched as group; and written, reported, and edited as journalism team. Reading and critiquing of wide range of music journalism. Music journalists and musicians as guest speakers. No prior journalism experience necessary. Letter grading.

**155. Music and Data Science (4)** Seminar, three hours. Introduction to data science for music professionals. History of charts, jukeboxes, Nielsen, Sound Scan, and advances in monitoring of music consumption. Impact of data technologies, and rise of data analytics in Internet era. Statistics and programming for musicians. Social media and fan engagement. Students learn to gather, process, and act on complex streams of consumption data, media analytics. Implications for monetization of musical creativity, management of intellectual property. Basic programming experience is recommended to make best use of course. Letter grading.

**176. Music and Capitalism in West (4)** (Same as Ethnomusicology M176.) Lecture, four hours. Follows history of western capitalism and how it has shaped music-making and listening to present time. P/NP or letter grading.

**181. Forensic Musicology (4)** (Same as Musicology CM181.) Seminar, three hours. Survey of critical issues and recent developments in field of forensic musicology—application of musical analysis to law of music copyright. Instructors include professionals in music industry. Study of fundamentals of music analysis and copyright law, review of key music copyright infringement cases from both legal and musicological perspectives, outlining of procedural aspects of copyright case, and defining of working relationship between attorney and musicologist. Letter grading.

**182. Music Industry (4)** (Same as Ethnomusicology CM182, Music CM182, and Musicology CM186.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Letter grading.

**185. Contemporary Topics in Music Industry (4)** Seminar, three hours. Discussion and research into current trends in music industry and music industry studies. Topical focus may vary based on interests of instructor and students. May be repeated for credit with topic change. P/NP or letter grading.

**187A. Capstone Seminar in Music Industry I: Developing Project/Connections (2)** Seminar, three hours. Limited to senior Music Industry majors. Preparation, creation, and presentation of senior capstone project. Letter grading.

**187B. Capstone Seminar in Music Industry II: Creating Project/Internship (4)** Seminar, three hours. Requisite: course 187A. Limited to senior Music Industry majors. Preparation, creation, and presentation of senior capstone project. Letter grading.

**187C. Capstone Seminar in Music Industry III: Presenting Project/Report (2)** Seminar, three hours. Requisite: course 187B. Limited to senior Music Industry majors. Preparation, creation, and presentation of senior capstone project. Letter grading.

**188. Special Courses in Music Industry (4)** Seminar, four hours; outside study, eight hours. Special topics in music industry for undergraduate students taught on experimental or temporary basis. May be repeated for credit with topic change. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**195. Community or Corporate Internships in Music Industry and Technology (4)** Tutorial, eight hours. Preference given to juniors/seniors in Music Industry minor with minimum cumulative 3.0 grade-point average. Internship in supervised setting in community agency or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

**195CE. Community and Corporate Internships in Music Industry (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. Letter grading.

**196. Directed Mentorships in Music Industry (2, 4)** Tutorial, one hour. Limited to senior Music Industry majors with minimum cumulative 3.0 grade-point average. Supervised individual research under guidance of faculty and industry mentoring team. Culminating industry project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**197. Individual Studies in Music Industry and Technology (2 to 4)** Tutorial, six to 12 hours. Limited to juniors/seniors in Music Industry minor with minimum cumulative 3.0 grade-point average. Individual intensive study in music industry and technology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in research project/paper required. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. Letter grading.

# Musicology

## Musicology Courses

### Lower Division

**1. Issues and Methods in Musicology (4)** (Formerly numbered 101.) Seminar, three hours. Introduction for Musicology majors and minors to practical aspects and fundamental issues of musicology as academic discipline. How musicologists go about establishing, editing, performing, analyzing, and interpreting musical texts. Exposure to kinds of activities, philosophies, and styles of scholarship that continue to shape field of musicology. Letter grading.

**2. Musicology Toolkit (2)** Laboratory, two hours. Workshop-based course in which students apply the issues and methods from course 1 in a focused, community-engaged way to develop skillsets appropriate to musicology and related fields. P/NP grading.

**3. Introduction to Classical Music (5)** (Formerly numbered Musicology 3.) (Same as Music M14.) Lecture, four hours; discussion, one hour. Survey of music of Western classical tradition, with emphasis on historical context, musical meanings, and creation of tradition itself. P/NP or letter grading.

**5. History of Rock and Roll (5)** Lecture, four hours; discussion, one hour. Analysis of forms, practices, and meanings of rock and roll music, broadly conceived, from its origin to present. Emphasis on how this music has reflected and influenced changes in sexual, racial, and class identities and attitudes. Credit for both courses 5 and 185 not allowed. Letter grading.

**6A. Introduction to Global Musicianship (2)** (Same as Ethnomusicology M6A and Music M6A.) Laboratory, four hours. Course M6A is enforced requisite to M6B, which is enforced requisite to M6C. Students must receive grade of C– or better to proceed to next course in sequence. Introduction to global musicianship through in-depth exploration of basic musical elements through performance, aural skills, and active listening. Engages with melodic information represented in solfège, harmonic information in Nashville number system, and rhythmic information in both Western notation and digital audio workstation grid visualization. Letter grading.

**6B. Introduction to Musicianship (2)** (Same as Ethnomusicology M6B and Music M6B.) Laboratory, four hours. Preparation: placement examination. Enforced requisite: course M6A with grade of C– or better. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

**6C. Introduction to Musicianship (2)** (Same as Ethnomusicology M6C and Music M6C.) Laboratory, four hours. Preparation: placement examination. Enforced requisite: course M6B with grade of C– or better. Introduction to musicianship through in-depth exploration of basic common musical elements and training in aural recognition, sight singing, dictation, and keyboard skills. Focus on topics such as tonal and modal harmony, rhythm, improvisation, composition, notation, and ear training to prepare students for later theory courses, participation in music ensembles, advanced study in music, and professional careers. Letter grading.

**7. Film and Music (5)** Lecture, four hours; discussion, one hour. History of music and cinema, particularly ways music is used to produce meanings in conjunction with visual image. Credit for both courses 7 and 177 not allowed. P/NP or letter grading.

**8. History of Electronic Dance Music (5)** Lecture, four hours; discussion, one hour. Survey of groove-based electrified dance music from its origins in 1960s pop and soul to present, covering disco, house, techno, ambient, rave, and jungle. Emphasis on interaction of technology, musical structures, psychoactive drugs, and club cultures to induce altered states of musical consciousness; promise (versus reality of) political and spiritual transformation; electronic dance music as new art music. P/NP or letter grading.

**9. American Popular Song (5)** Lecture, four hours; discussion, one hour. American popular music before advent of rock and roll in 1950s, with special emphasis on song tradition of Tin Pan Alley. P/NP or letter grading.

**12W. Writing about Music (5)** Lecture, four hours; laboratory, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Emphasis on learning specific skills, incorporating technical description, historical contextualization, subjective reaction, and certain stylistic conventions necessary in writing about music. Satisfies Writing II requirement. Letter grading.

**13. Punk: Music, History, Subculture (5)** Lecture, four hours; discussion, one hour. Developments in punk music in their historical and subcultural contexts. Survey of prepunk and musical antecedents in 1960s, rise of punk in 1970s, and tracing of its expressive trajectories to present day. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**28A. Collegium Musicum: Medieval Period (2)** Lecture, three hours. Preparation: ability to read music. Group performance of Western vocal and instrumental music. P/NP or letter grading.

**28B. Collegium Musicum: Renaissance Period (2)** Lecture, three hours. Preparation: ability to read music. Group performance of Western vocal and instrumental music. P/NP or letter grading.

**28C. Collegium Musicum: 17th and 18th Centuries (2)** Lecture, three hours. Preparation: ability to read music. Group performance of Western vocal and instrumental music. P/NP or letter grading.

**35. Introduction to Opera (5)** Lecture, four hours; discussion, one hour. Exploration of history of opera from its origins in Florentine Camerata in Italy in early 17th century, through ages of Enlightenment and Romanticism, and ending with modern era of early 20th century. History of opera, biography of composers and singers, operatic conventions, dramaturgy, plot, stagings, hermeneutics of opera, and musical style, with focus on learning appreciation of music of opera within rich context of its compelling history. P/NP or letter grading.

**60. American Musical (5)** Lecture, four hours; discussion, 90 minutes. Survey of American musical in 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and variety of popular musical styles, including Tin Pan Alley, jazz, and rock. Credit for both courses 60 and 160 not allowed. P/NP or letter grading.

**61. Music in Los Angeles (5)** Lecture, four hours; discussion, one hour. Exploration of history of music in Los Angeles. From Spanish missions and history of Los Angeles to greater emphasis on music in 20th century, with special focus on European émigrés, internment and postwar history of Japanese American community, Chicano and Mexican American music to present, African American traditions including jazz on Central Avenue, 1960s Laurel Canyon and rock scene, and more recent history that includes developments in punk and hip-hop. P/NP or letter grading.

**62. Mozart (5)** Lecture, four hours; discussion, one hour. Designed for students who do not read music. Life, works, and mythology of Wolfgang Amadeus Mozart, in context of both his age and our own. Credit for both courses 62 and 162 not allowed. P/NP or letter grading.

**63. Bach (5)** Lecture, four hours; discussion, one hour. Designed for undergraduate students. Life and works of Johann Sebastian Bach. Credit for both courses 63 and 163 not allowed. P/NP or letter grading.

**64. Motown and Soul: African American Popular Music of 1960s (5)** Lecture, four hours; discussion, one hour. Survey of developments in post-World War II African American popular music, with special attention to musical achievements of Motown Records, Stax, and other rhythm and blues, funk, and soul music centers of production. Relationships between musical forms and cultural issues of 1960s, including Civil Rights Movement, counterculture, black nationalism, capitalism, and separatism, and larger dimensions of African American experience as mediated through groove-based music. Credit for both courses 64 and 164 not allowed. P/NP or letter grading.

**65. Blues in American Music (5)** Lecture, four hours; discussion, one hour. History of blues, both as specific genre and as range of techniques and approaches that have been at center of American music and culture, from 19th-century roots to present. Exploration of commonly accepted blues mainstream exemplified by figures like Bessie Smith, Robert Johnson, and B.B. King, but also central role blues has played in jazz, folk, country, gospel, rock, soul, and rap. While following evolution of music through 20th century, examination of how blues has served as metaphor for African American culture as it permeates American traditions. Credit for both courses 65 and 165 not allowed. P/NP or letter grading.

**66. Getting Medieval (5)** Lecture, four hours; discussion, one hour. Exploration of idea of medievalism in music and culture from Wagner to video games. Music covered includes film scores, opera, Gregorian chant, early music revival, folk songs, progressive rock, and Goth. Credit for both courses 66 and 166 not allowed. Letter grading.

**67. Popular Jewish and Israeli Music (5)** (Same as Jewish Studies M67.) Lecture, four hours; discussion, one hour. Music of Jews is diverse. With history of several thousand years and series of developments in modernity, music in

Jewish life covers variety of styles found in many contexts. Exploration of music of Jews within last 100 years, with focus on popular music of Jews in America and Israel. Examination of music in Israel, with focus on songs of land of Israel, Israeli rock, and Muzika Mizrachit (Middle Eastern popular music). P/NP or letter grading.

**68. Beatles (5)** Lecture, four hours; discussion, one hour. Examination of life and music of Beatles within social and historical context of 1960s. Credit for both courses 68 and 168 not allowed. P/NP or letter grading.

**69. Music and Politics (5)** Lecture, four hours; discussion, one hour. Exploration and demonstration of various ways in which music is informed by and informs politics. From individual performances to mass demonstrations, music is recognizable as a political act and tool that is not simply representative, but also constitutive, meaning that music creates belief systems (politics). Examination of development and use of music by social movements, political parties, and nations, and critical listening practices to better hear world around us and sounds that compose its futures. P/NP or letter grading.

**70. Beethoven (5)** Lecture, four hours; discussion, one hour. Designed for undergraduate students. Life and works of Ludwig van Beethoven. Credit for both courses 70 and 170 not allowed. P/NP or letter grading.

**71. Listening (5)** Lecture, four hours; discussion, one hour. Introduction to humanistic study of listening, as perceptual modality for engaging others and world, with focus on experience, history, politics, and ethics of listening. Hearing is shared perceptive faculty among able-bodied people, but listening practices are shaped by history, society, and culture. Hearing people listen differently depending on when, where, and how they live, as well as who they are as individuals. P/NP or letter grading.

**72. Sacred Music (5)** Lecture, four hours; discussion, one hour. Study of forms and liturgies of Western church music. Credit for both courses 72 and 172 not allowed. P/NP or letter grading.

**73. Music and Religion in Popular Culture (5)** (Same as Ethnomusicology M73.) Lecture, four hours; discussion, one hour. Survey of popular music in religious traditions since the 1970s. Growth of music in Jewish denominations, including Orthodox, Reform, and Conservative, and Christian contemporary music, from evangelical to cross-over artists performing in mainstream. Credit for both courses M73 and M173 not allowed. P/NP or letter grading.

**75. History of Jazz (5)** Lecture, four hours; discussion, one hour. History and analysis of variety of jazz styles, from late 19th-century forerunners to present, with emphasis on social meanings of musical practices. Letter grading.

**79. Dancehall, Rap, Reggaeton: Beats, Rhymes, and Routes in African Diaspora (5)** Lecture, four hours; discussion, one hour. Survey of histories of three closely connected music genres: Jamaican dancehall, U.S. rap, and Puerto Rican/Panamanian reggaeton. Introduction to major performers in each genre, comparison of stylistic traits associated with each music, and exploration of technologies associated with contemporary music production. P/NP or letter grading.

**80. Jewish American Experience through Music (5)** (Same as Ethnomusicology M80 and Jewish Studies M80.) Lecture, four hours; discussion, one hour. In synagogue and on stage, and from LP recordings to YouTube, Jews in America have varied musical experiences. Music of synagogue, celebrations at home, in community, and theater are all interesting developments of Jewish music. New Opportunities in entertainment industry brought new possibilities for Jews in popular music, rock, and film scores. Exploration of various examples of Jews responding and adapting to their American context and becoming American through music. Exploration of different music genres and contexts. Presentations by guest composers and performers. Letter grading.

**82. Music and Holocaust: Individual Experience (5)** (Same as Jewish Studies M82.) Lecture, three hours; discussion, one hour. Roles of music during Holocaust are as varied as people who experienced it. Music was composed and performed by prisoners in almost every concentration camp; music was means for some individuals to gain favorable treatment, while others weaponized it. Traces development of European musical culture under Nazi regime (1933-45), focusing on how individuals interacted with music throughout Holocaust. Study of some of newest developments in Holocaust music research, including role American and European non-governmental organizations played in creation of artistic hubs in campus of southern France. Exploration also of cultural representations of Holocaust, and role of music in society's collective memory. Letter grading.

**88. Sophomore Seminars: Music History (2)** Seminar, two hours. Designed for sophomore Musicology majors or students interested in pursuing Musicology major. Introduction to music history as academic discipline, with particular emphasis on musicology at UCLA. Study of music and its history and consid-

eration of theoretical issues central to musicology as it is practiced today, including gender and sexuality, music and politics, race, popular music studies, and jazz studies. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**CM90T. Early Music Ensemble (4)** (Same as Music M90T.) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. May be concurrently scheduled with course C490T. P/NP or letter grading.

**94. Music and Internet (5)** Lecture, four hours; discussion, one hour. Survey of changes undergone by music in digital environment. As music becomes increasingly pervasive—found everywhere, yet living nowhere special—what social, economic, political, and aesthetic forces are determining centers of attention? Examination of formative force of Internet on sounds themselves. What kinds of noises develop logically within digital context, where creative freedoms and public disinterest are equally apparent? What does Internet sound like? P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**M103. Creating Musical Community (4)** (Same as Ethnomusicology M103, Global Jazz Studies M103, and Music M103.) Seminar, four hours; discussion, one hour. Limited to school of music majors. Faculty and students make music together in different modes. Students learn certain repertoire, refine it, and bring it to concert performance. Students critically engage musical literacies and notion of social contract that forms basis of musical notation. Drawing from American music folk game traditions, highlights complex history of this country and way in which entire body is used as resource when instruments are unavailable. Letter grading.

**112. Disability and Musical-Dramatic Arts: Representation, Embodiment, Themes, and Practices (5)** (Same as Disability Studies M112.) Lecture, four hours; discussion, one hour. Exploration of ways disability and impairment factor into musical and musical-dramatic creation and performance, considered historically and aspirationally in terms of representation, embodiment, thematics, and developing practices. P/NP or letter grading.

**113. Variable Topics on Music and Disability (4)** (Same as Disability Studies M113.) Seminar, four hours. Analysis and critique of depiction of disability and music. Topics may include introduction to disability studies; exploring work and creative strategies of disabled musicians; music technologies and instrument design; representation of disability in music; and more. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**125A. History of Western Music: Era of Church and Patron (5)** Lecture, four hours; discussion, one hour. Requisite: course M6A (may be taken concurrently). Course 125A is requisite to 125B, which is requisite to 125C. Students must receive grade of C or better to proceed to next course in sequence. Introduction to history, culture, and structure of Western music, in era of church and court patronage, through selected topics, repertoires, and analytical techniques. Letter grading.

**125B. History of Western Music: Era of Empires and Marketplaces (5)** Lecture, four hours; discussion, one hour. Requisite: course M6B (may be taken concurrently), 125A. Course 125A is requisite to 125B, which is requisite to 125C. Students must receive grade of C or better to proceed to next course in sequence. Introduction to history, culture, and structure of Western music, in era of empires and marketplaces, through selected topics, repertoires, and analytical techniques. Letter grading.

**125C. History of Western Music: Modern and Postmodern Era (5)** Lecture, four hours; discussion, one hour. Requisite: course M6C (may be taken concurrently), 125B. Course 125A is requisite to 125B, which is requisite to 125C.

Students must receive grade of C or better to proceed to next course in sequence. Introduction to history, culture, and structure of Western music, in modern and postmodern eras, through selected topics, repertoires, and analytical techniques. Letter grading.

**126. Musics, Cultures, and Their Interpretation (5)** Lecture, four hours; discussion, one hour. Prerequisite or corequisite: M6A. Designed to supplement broad historical survey in Musicology 125 series by focusing on interlocking questions of how cultures make music, and how music makes cultures. Letter grading.

**127. Music, Sound, and Structure (5)** Lecture, four hours; discussion, one hour. Prerequisite or corequisite: M6A. Designed to supplement broad historical survey in Musicology 125 series by focusing on interlocking questions of musical structure and meaning. Letter grading.

**128. History of Popular Music (5)** Lecture, four hours; discussion, one hour. Prerequisite or corequisite: M6A. Introduction to study of popular music through American history, with emphasis on music of Americas, Afro-diasporic music, and socioeconomic structure of music making in industrial society. Letter grading.

**135A. History of Opera: Baroque and Classical Periods (5)** Lecture, four hours; discussion, one hour. Designed for undergraduate students. P/NP or letter grading.

**135B. History of Opera: Romantic Period (5)** Lecture, four hours; discussion, one hour. Designed for undergraduate students. P/NP or letter grading.

**135C. History of Opera: 20th Century (5)** Lecture, four hours; discussion, one hour. Designed for undergraduate students. P/NP or letter grading.

**136. Music and Gender (5)** (Same as Gender Studies M136.) Lecture, four hours; discussion, one hour. Analysis of gender ideologies in several musical cultures; representations of gender, body, and sexuality by both male and female musicians; contributions of women to Western art and popular music; methods in feminist and gay/lesbian theory and criticism. Letter grading.

**137. Lesbian, Gay, Bisexual, Transgender, and Queer Perspectives in Pop Music (5)** (Same as Lesbian, Gay, Bisexual, Transgender, and Queer Studies M137.) Lecture, four hours; discussion, one hour. Survey of English-language popular music in 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

**140. Music, Media, and Consumer Society (4)** Lecture, four hours. Consideration of impact of recording technologies (gramophone, tape recorder, Walkman, sampler), broadcast media (radio, television, MTV, Internet), and global capitalism (record labels, advertising, Muzak) on way we consume and are consumed by music. How music functions and malfunctions on records, under movies, behind ads, and in semiotic fabric of everyday life. Letter grading.

**160. Selected Topics in American Musical (5)** Seminar, 90 minutes. Enforced corequisite: attendance, but not enrollment, in course 60 lecture. Exploration of connections and disconnects between American musical on stage and American film musicals. Credit for both courses 60 and 160 not allowed. Letter grading.

**162. Selected Topics in Music of Mozart (5)** Seminar, two hours. Preparation: ability to read music and engage in melodic, harmonic, and formal analysis. Enforced corequisite: attendance, but not enrollment, in course 62 lecture. Limited to Musicology majors and minors. Intensive discussion of selected pieces by Mozart and of certain topics important to fuller understanding of his contributions to musical culture of Enlightenment, as well as to contemporary culture. Credit for both courses 62 and 162 not allowed. Letter grading.

**163. Bach: Study of Selected Works (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 63 lecture. Limited to Musicology majors and minors. Examination of Bach's music in greater depth. Credit for both courses 63 and 163 not allowed. Letter grading.

**164. Selected Topics in African American Popular Music of 1960s (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 64 lecture. Intensive discussion of developments in post-World War II African American popular music, with special attention to musical achievements of Motown Records, Stax, and other rhythm and blues, funk, and soul music centers of production. Relationships between musical forms and cultural issues of 1960s, including Civil Rights Movement, counterculture, black nationalism, capitalism, and separatism, and larger dimensions of African American experience as mediated through groove-based music. Credit for both courses 64 and 164 not allowed. Letter grading.

**165. Blues and Individual Expression (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 65 lecture. Limited to Musicology majors and minors. In-depth look at specific blues artists, with special attention to issues of authenticity, biography, personal and group identity,

commercialism, musical style, and evolving history of American music and culture in 20th century. Credit for both courses 65 and 165 not allowed. Letter grading.

**166. Medievalism and Music History (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 66 lecture. Exploration of ways in which specific approaches and attitudes to past shape music history, composition, and performance, with special focus on folk music and early music revivals. Credit for both courses 66 and 166 not allowed. Letter grading.

**168. Selected Topics on Beatles (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 68 lecture. Intensive discussion in seminar setting of selected topics associated with Beatles. Credit for both courses 68 and 168 not allowed. Letter grading.

**170. Beethoven: Study of Selected Works (5)** Seminar, 90 minutes. Corequisite: attendance, but not enrollment, in course 70 lecture. Designed to meet needs of students who read music and wish to examine Beethoven's music in greater depth. Credit for both courses 70 and 170 not allowed. Letter grading.

**172. Selected Topics in Sacred Music (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 72 lecture. Introduction to some ways that music has been held to embody, support, and enact sacredness, including experience of god(s), sense of transcendental, work of liturgy, and intersections of music, politics, and religion. Credit for both courses 72 and 172 not allowed. Letter grading.

**173. Selected Topics in Music and Religion in Popular Culture (5)** (Same as Ethnomusicology M173.) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course M73 lecture. Exploration of connections of music, religion, and popular culture among American Jews and Christians. Credit for both courses M73 and M173 not allowed. Letter grading.

**176. Careers in Humanities (4)** (Same as Comparative Literature M191P and English M191P.) Seminar, three hours. Challenges misassumptions regarding humanities majors and their practical applications to life after graduation. Exploration of wide range of careers, with hands-on practice in crafting professional narrative. Guest lectures from UCLA professionals and alumni—all experts in career planning and local industry. Students engage with workplace leaders, and simultaneously build professional dossier—on paper or online—in preparation for life after UCLA with a humanities degree. P/NP or letter grading.

**177. Selected Topics in Film and Music (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 7 lecture. Limited to Musicology majors and minors. In-depth exploration of issues in analysis and criticism of music in film. Credit for both courses 7 and 177 not allowed. Letter grading.

**CM181. Forensic Musicology (4)** (Same as Music Industry M181.) Seminar, three hours. Survey of critical issues and recent developments in field of forensic musicology—application of musical analysis to law of music copyright. Instructors include professionals in music industry. Study of fundamentals of music analysis and copyright law, review of key music copyright infringement cases from both legal and musicological perspectives, outlining of procedural aspects of copyright case, and defining of working relationship between attorney and musicologist. Concurrently scheduled with course C281. Letter grading.

**184A. Capstone Seminar in Music History and Industry I: Developing Project/Connections (2)** Seminar, three hours. Limited to senior Music History and Industry majors. Preparation, creation, and presentation of senior capstone project. Letter grading.

**184B. Capstone Seminar in Music History and Industry: Creating Project/Internship (4)** Seminar, three hours. Prerequisite: course 184A. Limited to senior Music History and Industry majors. Preparation, creation, and presentation of senior capstone project. Letter grading.

**184C. Capstone Seminar in Music History and Industry: Presenting Project/Report (2)** Seminar, three hours. Prerequisite: course 184B. Limited to senior Music History and Industry majors. Preparation, creation, and presentation of senior capstone project. Letter grading.

**185. Selected Topics in Rock and Roll (5)** Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 5 lecture. Intensive discussion in seminar setting of selected topics in rock and roll. Credit for both courses 5 and 185 not allowed. Letter grading.

**CM186. Music Industry (4)** (Same as Ethnomusicology CM182, Music CM182, and Music Industry M182.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical ap-

proach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with Musicology CM288. Letter grading.

**187A. Capstone Seminar I: Developing the Project (2)** Seminar, three hours; discussion, one hour. Limited to Musicology majors in their final year of academic studies. Preparation, creation, and presentation of senior capstone project. Taken in Fall Quarter of senior year. Letter grading.

**187B. Capstone Seminar II: Creating the Project (4)** Seminar, three hours; discussion, one hour. Limited to Musicology majors in their final year of academic studies. Requisite: course 187A. Preparation, creation, and presentation of senior capstone project. Taken in Winter Quarter of senior year. Letter grading.

**187C. Capstone Seminar III: Presenting the Project (2)** Seminar, three hours; discussion, one hour. Limited to Musicology majors in their final year of academic studies. Requisite: course 187B. Preparation, creation, and presentation of senior capstone project. Taken in Spring Quarter of senior year. Letter grading.

**188. Special Courses in Music History (4)** Lecture, four hours. Special topics in music history for undergraduate students taught on temporary basis. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Music History (2)** Seminar, two hours. Designed for senior Musicology majors. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to complete their capstone projects and share their work with their peers, as well as act as interlocutors for other course members. Students expected to present their work and to discuss and help critique work of others at similar stage of development. They may elect to showcase their work before academic publics (e.g., through organizing one conference or one special publication). Letter grading.

**191A. Junior Variable Topics Research Seminars: History of Music—Middle Ages (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191B. Junior Variable Topics Research Seminars: History of Music—Renaissance (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191C. Junior Variable Topics Research Seminars: History of Music—Baroque (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191D. Junior Variable Topics Research Seminars: History of Music—Classic (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191E. Junior Variable Topics Research Seminars: History of Music—Romantic (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191F. Junior Variable Topics Research Seminars: History of Music—20th Century (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191G. Junior Variable Topics Research Seminars: History of Music—Other Topics (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**191P. Junior Variable Topics Seminars: History of Music—Performance Practice (4)** Seminar, three hours. Designed for junior Musicology majors. Special aspects of music of each period studied in depth. Practical issues in performance practice, specific questions of how musical performance intersects with cultural and political performance, and/or general issues of theory of performance in Western musics; proportion of each to be determined by repertory and historical context selected by instructor. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

**193C. Music History Journal Club Seminars for Majors (2)** Seminar, two hours. Limited to Musicology majors. Introduction to discipline through discussion of readings and lectures on current topics in field, with focus especially on its practice at UCLA, and addressing research methodologies and development of bibliographic control. Normally taken in junior year. P/NP grading.

**193D. Music History Performance/Analysis Seminars for Majors (2)** Seminar, two hours. Recommended requisite: course 193C. Limited to Musicology majors. Introduction to how music historians engage with issues of musical performance, and of how historical concerns, theoretical issues, and methodologies can inform music as practice, especially as it is performed, recorded, listened to, danced to, and otherwise consumed. Continued attention to issues of bibliographic control. Normally taken in senior year. P/NP grading.

**195. Community Internships in Music (2 to 4)** Tutorial, one hour; fieldwork, 10 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to music or music history. Students meet on regular basis with instructor and provide periodic reports of their experiences and final project. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

**197. Individual Studies in Music History (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198. Honors Research in Music History (2 to 4)** Tutorial, two hours. Preparation: completion of minimum of four upper-division music history courses with departmental grade-point average of 3.5 or better and overall GPA of 3.0. Limited to junior/senior Musicology majors. One- to two-term independent research study project under supervision of appropriate faculty member, culminating in department honors thesis of approximately 25 pages. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Music History (1 to 4)** Tutorial, one hour. Preparation: 3.0 grade-point average. Limited to junior/senior Musicology majors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Introduction to Music Scholarship (6)** Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to history of different fields of music scholarship (with strong focus on musicology) and to selected debates in those fields. Practical tools for research, logic and structure of arguments, evidence, critical thinking and critique, historiography, rhetoric and voice, and archival and ethnographic research. Introduction to practical written forms such as abstract, grant proposal, paper/book proposal, and review. Letter grading.

**200B. Critical, Cultural, and Social Theory (6)** Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to issues surrounding music as social, cultural, and historical practice, with strong emphasis on critical, cultural, and social theory. May include introduction to social theory, materialist theories of culture, postcolonialism, critical theory, or overview of cultural theory or of group of theories selected by instructor, including feminism, performance studies, sociology, historiography, urban studies, anthropology, philosophy, psychoanalysis, poststructuralism, gender, race, and sexuality studies, lesbian, gay, bisexual, transgender, and queer studies, disability studies, and so on. Introduction to set body of theory in its relation to study of music. Letter grading.

**200C. Music Aesthetics, Analysis, and Philosophy (6)** Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Exploration of selected philosophical, aesthetic, and/or analytical perspectives on music to gain insight into selected analytical and philosophical approaches to phenomenon of music and to acquire skills in analyzing and interpreting variety of repertoires. Letter grading.

**201. Repertory and Analysis (2)** (Same as Music M201.) Seminar, two hours. Requisite or corequisite: course 200A. Exploration of defined repertory through readings and analysis. Specific topics vary. May be repeated for credit. S/U grading.

**245. Seminar: Analytical/Repertoire Topics (4)** Seminar, three hours. Designed for graduate musicology students. Coverage of analytical topics that vary from year to year. May be repeated for credit. Meets with course 246; concurrent enrollment in both courses not allowed. Letter grading.

**246. Audit Seminar: Analytical/Repertoire Topics (2)** Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 245; concurrent enrollment in both courses not allowed. S/U grading.

**248. Seminar: Special Topics in Musicology (4)** Seminar, three hours. Exploration of topics in musicology through variety of approaches that may include historical, theoretical, or analytical approaches to subjects within musicology. Topics announced in advance. May be repeated for credit. Letter grading.

**250. Seminar: Theoretical Topics (4)** Seminar, three hours. Designed for graduate musicology students. Coverage of theoretical topics that vary from year to year. May be repeated for credit. Meets with course 251; concurrent enrollment in both courses not allowed. Letter grading.

**251. Audit Seminar: Theoretical Topics (2)** Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 250; concurrent enrollment in both courses not allowed. S/U grading.

**255. Seminar: Historical Topics (4)** Seminar, three hours. Designed for graduate musicology students. Coverage of historical topics that vary from year to year. May be repeated for credit. Meets with course 256; concurrent enrollment in both courses not allowed. Letter grading.

**256. Audit Seminar: Historical Topics (2)** Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 255; concurrent enrollment in both courses not allowed. S/U grading.

**259. Audit Seminar: Mapping Sonic Urban Geography of Los Angeles in 1940s (2)** Seminar, three hours. Limited to departmental graduate students and those in Urban Humanities Certificate Program. Exploration of methodologies and conceptual frameworks for mapping sonic urban geography of Los Angeles in 1940s. In-depth critical discussion of current theories of music and space and of most recently developed methodologies for undertaking ethnographic or anthropological study of sound, including recording and mapping soundscapes. May not be applied toward MA or PhD degree requirements. May be repeated for credit. Meets with course 260; concurrent enrollment in both courses not allowed. S/U grading.

**260. Mapping Sonic Urban Geography of Los Angeles in 1940s (4)** Seminar, three hours. Limited to departmental graduate students and those in Urban Humanities Certificate Program. Exploration of methodologies and concep-

tual frameworks for mapping sonic urban geography of Los Angeles in 1940s. In-depth critical discussion of current theories of music and space and of most recently developed methodologies for undertaking ethnographic or anthropological study of sound, including recording and mapping soundscapes. Letter grading.

**261. Topics in Performance Practice (4)** Seminar, three hours. Designed for graduate students. Investigation of primary source readings in performance practices across history of Western music; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

**C281. Forensic Musicology (4)** Seminar, three hours. Survey of critical issues and recent developments in field of forensic musicology—application of musical analysis to law of music copyright. Instructors include professionals in music industry. Study of fundamentals of music analysis and copyright law, review of key music copyright infringement cases from both legal and musicological perspectives, outlining of procedural aspects of copyright case, and defining of working relationship between attorney and musicologist. Concurrently scheduled with course CM181. Letter grading.

**CM288. Music Industry (4)** (Same as Ethnomusicology CM288 and Music CM282.) Lecture, four hours; discussion, one hour; outside study, seven hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM186. Letter grading.

**291. Teaching Western Musical Canon (1)** Seminar, three hours. Workshop series designed to prepare graduate musicology students to teach Western musical canon at undergraduate level. May be repeated for credit. S/U grading.

**296. Research Topics in Musicology. (2 to 4)** Seminar, two to four hours. Preparation: consultation with instructor. Designed for graduate musicology students. Advanced study and analysis of current topics in musicology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**298. Seminar: Research Methods (2)** Seminar, two hours. Limited to second-year graduate musicology students and students with master's degrees. Development of advanced knowledge and bibliographic control in three historically separate areas of musicological specialization. May be repeated for credit. S/U grading.

**299. Dissertation Research Colloquium (2)** Seminar, two hours. Preparation: advancement to PhD candidacy. Presentation of ongoing dissertation research. Analysis and discussion of presentations. May be repeated for credit. S/U grading.

**C490T. Early Music Ensemble (4)** Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. May be concurrently scheduled with course CM90T. S/U or letter grading.

**495. Introductory Practicum for Teaching Apprentices in Musicology (4)** Seminar, three hours. Preparation: appointment as teaching apprentice in Music or Musicology Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching music at college level. May not be applied toward degree requirements. S/U grading.

**596. Directed Individual Studies in Musicology. (2 to 6)** Tutorial, to be arranged. Limited to graduate students. S/U or letter grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2, 4)** Tutorial, to be arranged. Preparation: completion of all MA or PhD course and language requirements. Limited to graduate students. S/U grading.

**599. Guidance of PhD Dissertation (4 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Limited to graduate students. May be repeated for credit. S/U grading.

# Naval Science – Naval ROTC

## Naval Science Courses

### Lower Division

**1A. Introduction to Naval Science (3)** Lecture, three hours. Introduction to organization of Naval Service, various components of Navy, career opportunities, shipboard damage control, fire fighting, Naval and Marine Corps operations, and some customs and traditions of Naval Service. Letter grading.

**1B. Naval Ship Systems I (4)** Lecture, four hours. Introduction to naval engineering, with emphasis on steam, nuclear, diesel, and gas turbine propulsion systems and their associated auxiliary components. Basic thermodynamic theory, electrical theory, stability, and buoyancy. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Naval Ship Systems II (4)** Study of naval weapon systems, with emphasis on infrared, radar, and sonar principles. Target designation and acquisition, methods of solving fire control problem, target detection systems. Analysis of transfer and feedback functions inherent in weapon systems.

**20B. Seapower and Maritime Affairs (3)** Lecture, three hours. Conceptual study of seapower, with emphasis on historical development of naval and commercial power. Seapower examined in relation to economic, political, and cultural strengths, with focus on current abilities of specific nations to use oceans to attain national objectives. P/NP or letter grading.

### Upper Division

**101A. Navigation (4)** Lecture, four hours. Study of principles of piloting, celestial, and electronic navigation employed in determining a ship's position at sea. Celestial and electronic theory, mathematical analysis, sextant sights, and use of navigational aids. P/NP or letter grading.

**101B. Naval Operations and Seamanship (4)** Lecture, four hours. Requisite: course 101A. Study of rules of road, shiphandling, and basic concepts of multiple ship formations and maneuvering. In-depth analysis of problems associated with operations on high seas and inland waters applying to civil and U.S. Naval craft. Letter grading.

**102B. Leadership and Management (4)** Lecture, four hours. Examination of current and classical leadership and management theories, with emphasis on their application to junior military officer's role as a leader/manager. Topics include managerial functions, performance appraisal, motivation theories, group dynamics, leadership theories, and communication. P/NP or letter grading.

**102C. Leadership and Ethics (4)** Lecture, four hours. Recommended requisite for Naval Science ROTC midshipmen: course 102B. Capstone and second of two core leadership courses that provide academic foundation of NROTC leadership development. Integration of intellectual exploration of Western moral traditions and ethical philosophy with military leadership, core values, professional ethics, Uniform Code of Military Justice, and Navy regulations. Provides midshipmen with basic understanding of major moral traditions, including relativism, utilitarianism, Kantian ethics, natural law theory, divine command theory, and virtue ethics. Letter grading.

**103. Evolution of Warfare (4)** Study of evolution of warfare, including historical and comparative consideration of influence that leadership, political, economic, and sociological and technological development factors have had on warfare and influence they continue to exert in age of limited warfare.

**104. Fundamentals of Maneuver Warfare (4)** Seminar, four hours. Study of fundamentals of maneuver warfare, with particular emphasis on doctrine, tactics, and equipment used. Examination of topics through study of political and military objectives by focusing on historical examples from Revolutionary War to modern times. Examination of contemporary doctrine through study of recent operations. Letter grading.

**197. Individual Studies in Naval Science (1 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**Z. Naval Science Laboratory (0)** Laboratory, to be arranged. Mandatory for and limited to Naval Science ROTC midshipmen. Provides midshipmen with general military training and practical command and staff leadership experiences through classroom instruction and performance of various tasks and interactive processes within framework of organized midshipmen-run military unit, with oversight by active-duty military staff. As integral part of naval science curriculum, provides professional experiences designed to develop leadership potential and orientation for active duty. No grading.



# Near Eastern Languages and Cultures

## Ancient Near East Courses

### Lower Division

**10W. Jerusalem: Holy City (5)** Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3. Not open for credit to students with credit for course 12W. Survey of religious, political, and cultural history of Jerusalem over three millennia as symbolic focus of three faiths: Judaism, Christianity, and Islam. Transformation of sacred space as reflected by literary and archaeological evidence through examination of testimony of artifacts, architecture, and iconography in relation to written word. Study of creation of mythic Jerusalem through event and experience. Satisfies Writing II requirement. Letter grading.

**12W. Jerusalem: Holy City (5)** Seminar, four hours. Enforced prerequisite: English Composition 3. Not open for credit to students with credit for course 10W. Survey of religious, political, and cultural history of Jerusalem over three millennia as symbolic focus of three faiths: Judaism, Christianity, and Islam. Transformation of sacred space as reflected by literary and archaeological evidence through examination of testimony of artifacts, architectural monuments, and iconography in relation to written sources. Study of creation of mythic Jerusalem through event and experience. Development of advanced writing skills and critical thinking. Satisfies Writing II requirement. Letter grading.

**14. Medicine, Magic, and Science in Ancient Times (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 14W. Overview of history of medicine and sciences, focusing especially on Ancient Near East, China, and Meso-America. Letter grading.

**14W. Medicine, Magic, and Science in Ancient Times (5)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course 14. Overview of history of medicine and sciences, focusing especially on Ancient Near East, China, and Meso-America. Satisfies Writing II requirement. Letter grading.

**15. Women and Power in Ancient World (5)** Lecture, four hours; discussion, one hour. Not open for credit to students with credit for course 15W. Examination of how feminine power confronts masculine dominance within complex social systems in ancient world. To gain political power, some female rulers used their sexuality to gain access to important men. Other women gained their position as regents and helpers of masculine kings who were too young to rule. Others denied their femininity in dress and manner, effectively androgynizing themselves or pretending to be men so that their femininity would not be obstacle to political rule. Many women only gained throne at end of dynasties after male line had run out entirely, or in midst of civil war when patrilineal successions were in disarray. Women were sometimes only effective leaders left in drawn-out battles against imperial aggression. No women were able to gain reigns of power through their bloodlines alone. Women's power was compromised from outset. Examination of root causes and results of this political inequality. P/NP or letter grading.

**15W. Women and Power in Ancient World (5)** Lecture, four hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course 15. Examination of how feminine power confronts masculine dominance within complex social systems in ancient world. To gain political power, some female rulers used their sexuality to gain access to important men. Other women gained their position as regents and helpers of masculine kings who were too young to rule. Others denied their femininity in dress and manner, effectively androgynizing themselves or pretending to be men so that their femininity would not be obstacle to political rule. Many women only gained throne at end of dynasties after male line had run out entirely, or in midst of civil war when patrilineal successions were in disarray. No women were able to gain reigns of power through their bloodlines alone. Women's power was compromised from outset. Examination of root causes and results of this political inequality. Satisfies Writing II requirement. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Egyptian Hieroglyphs (5)** Lecture, five hours. Basic introduction to language and hieroglyphic script of ancient Egypt. Devoted to learning principles of hieroglyphic writing and Egyptian grammar, deciphering standard inscriptions, and using hieroglyphic text editing software to type hieroglyphs on computer. Students acquire ability to recognize and translate hieroglyphic inscriptions on common museum objects. P/NP or letter grading.

**50A. First Civilizations (5)** (Same as Middle Eastern Studies M50A.) Lecture, three hours; discussion, one hour. Survey of great civilizations of ancient Near East—Egypt, Israel, and Mesopotamia—with attention to emergence of writing, monotheism, and urban societies. Letter grading.

**50B. Origins of Judaism, Christianity, and Islam (5)** (Same as Middle Eastern Studies M50B and Religion M50.) Lecture, three hours; discussion, one hour. Examination of three major monotheisms of Western cultures—Judaism, Christianity, and Islam—historically and comparatively. Development, teachings, and ritual practices of each tradition up to and including medieval period. Composition and development of various sacred texts, highlighting key themes and ideas within different historical and literary strata of traditions, such as mechanisms of revelation, struggle for religious authority, and common theological issues such as origin of evil and status of nonbelievers. Letter grading.

**60. Achaemenid Civilization and Empire of Alexander (5)** (Same as History M60 and Iranian M60.) Lecture, three hours; discussion, one hour. Survey of period from circa 600 to 300 BCE, rise and fall of Achaemenid Persia, first world empire of antiquity, which was ended by Alexander the Great, whose campaigns were as transformative as they were violent. Alexander connected ancient Mediterranean and Near East as never before, ushering in new era and forever changing cultural landscape of ancient world. Focus on themes of ancient kingship and political ideology; comparative study of empires; administration and institutions; and religious and ethnic diversity in large, heterogeneous states. Emphasis on diversity critical to understanding political nuances of ancient world. Students gain broad knowledge of Achaemenid and Macedonian empires, facility with ancient primary sources, and development of analytical skills central to discipline of history that allow conceptualizing issues of diversity and othering in ancient world. P/NP or letter grading.

**60W. Achaemenid Civilization and Empire of Alexander (5)** (Same as History M60W and Iranian M60W.) Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course M60. Survey of period from circa 600 to 300 BCE, rise and fall of Achaemenid Persia, first world empire of antiquity, which was ended by Alexander the Great, whose campaigns were as transformative as they were violent. Alexander connected ancient Mediterranean and Near East as never before, ushering in new era and forever changing cultural landscape of ancient world. Focus on themes of ancient kingship and political ideology; comparative study of empires; administration and institutions; and religious and ethnic diversity in large, heterogeneous states. Emphasis on diversity critical to understanding political nuances of ancient world. Students gain broad knowledge of Achaemenid and Macedonian empires, facility with ancient primary sources, and development of analytical skills central to discipline of history that allow conceptualizing issues of diversity and othering in ancient world. Satisfies Writing II requirement. P/NP or letter grading.

**70. Demons, Fear, and Uncanny in Ancient World (5)** (Same as Religion M70.) Lecture, three hours; discussion, one hour. Consideration of place of demons and fear in several different societies and cultures in ancient world: Mesopotamia; ancient Egypt, Greece, and Rome; and Biblical and early Jewish contexts. Investigation into why demons and monsters existed in these cultures; how they were opposed or protected again; and what these different societies feared, and how that fear was represented. As demons and monsters are reflections of particular culturally specific fears and norms, studying them allows for examination of societies that constructed them. Examination of how fear of threats such as disease, illness, and death were constructed alongside fears of foreign and of women. Critical examination of wide range of primary source texts, addressing core question of how different societies construct unique fears—and how those fears shape those societies in turn. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**CM101A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom (4)** (Same as Art History M110A.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. Concurrently scheduled with course C267A. P/NP or letter grading.

**CM101B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period (4)** (Same as Art History M110B.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. Concurrently scheduled with course C267B. P/NP or letter grading.

**101C. Ancient Egyptian Temple and City of Thebes (4)** (Same as Art History M110C.) Lecture, four hours; fieldwork, one hour. Focus on ancient temples of city of Thebes (modern day Luxor). Theban temples are some of best-preserved cult buildings in all of Egypt, and their study illuminates traditions of artistic representation, architectural development, and social and political transformations echoed throughout all of ancient Egypt. Investigation of ritual linking of temples on Nile's eastern and western banks through festival processions, chronological changes in function and form of Theban temples through time, and statuary program of individual temples. P/NP or letter grading.

**103A. History of Ancient Egypt (4)** (Same as History M103A.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. Chronological discussion of Prehistory, Old and Middle Kingdom. P/NP or letter grading.

**103B. History of Ancient Egypt (4)** (Same as History M103B.) Lecture, three hours; discussion, one hour (when scheduled). Course M103B is not requisite to M103C. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. New Kingdom and Late period until 332 BC. P/NP or letter grading.

**104A. History of Ancient Mesopotamia and Syria (4)** (Same as History M104A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural development of Fertile Crescent, including Palestine, from Late Uruk to neo-Babylonian period. P/NP or letter grading.

**104B. Sumerians (4)** (Same as History M104B.) Lecture, three hours. Designed for juniors/seniors. Overview of Sumer and related cultures of Greater Mesopotamia in 4th and 3rd millennia BCE, with focus on rich cultural history of region and integration of archaeological, art historical, and written records. P/NP or letter grading.

**104C. Babylonians (4)** (Same as History M104C.) Lecture, three hours. Designed for juniors/seniors. Overview of Babylonia and cultural history of region from late 3rd millennium BCE to invasion of Cyrus in 539 BCE, with focus on history and archaeology of region, urban structure, literature, and legal practices. P/NP or letter grading.

**104D. Assyrians (4)** (Same as History M104D.) Lecture, three hours. Designed for juniors/seniors. Overview of Assyrian cultural history from its origins to end of Neo-Assyrian period (circa 612 BCE), with focus on rise, mechanics, and decline of Neo-Assyrian Empire, which at its peak ruled ancient Near East from Zagros to Egypt. P/NP or letter grading.

**105. Archaeology of Egypt and Sudan (4)** (Same as Anthropology M115.) Lecture, two hours; laboratory, three hours. Ancient Egypt is well known for iconic archaeological sites such as Giza Pyramids and Tomb of Tutankhamun. From these and thousands of less well-known sites, enormous variety of archaeological information can be gained. Through discussion of particular archaeological themes, regions, or sites, examination of methods of prehistoric and historic archaeology and how archaeological information contributes to understanding of social, political, and religious history. Background provided for development of group research projects—finding resources, data gathering, analysis, interpretation, presentation, and training on how to embark on research in this field. Computer laboratory component included in which student research is performed and presented in time map. P/NP or letter grading.

**110A. Iranian Civilization: History of Achaemenid Empire (4)** (Same as History M110A and Iranian M110A.) Lecture, three hours; discussion, one hour (when scheduled). From end of Elam and rise of Medes to Macedonian conquest of Achaemenid Persia. Emphasis on political history, state structure,

empire's religions, and Greco-Persian interactions. Further accents on Cyrus' empire and Darius' world order, age of Persian Wars, Cyrus the Younger, Achaemenid Egypt, Alexander's conquest. P/NP or letter grading.

**110B. Iranian Civilization: History of Arsacid (Parthian) Empire (4)** (Same as History M110B and Iranian M110B.) Lecture, three hours; discussion, one hour (when scheduled). From Hellenistic rule in Persia to Sasanian conquest. Emphasis on political history, state structure, empire's religions, interactions with Hellenistic and Roman worlds. Further accent on Parthian conquest of Iran and Mesopotamia, Seleucid demise and Arsacid hegemony in East, Arsacid-Roman wars, rise of Sasanians. P/NP or letter grading.

**110C. Iranian Civilization: History of Early Sasanian Empire—From Ardashir I to Rise of Peroz (circa 224-459 CE) (4)** (Same as History M110C and Iranian M110C.) Lecture, three hours; discussion, one hour (when scheduled). From fall of Arsacids to Muslim conquest of Iran. Emphasis on political and economic history, evolution of state structure, empire's religious landscape (Mazdism, Manicheism, Exilarchate, Church of Persia, Mazdakism), Persian and Roman/Byzantine interactions, Persia and East. Further accent on Persian-Roman conflicts and cooperation, Persia and Huns. P/NP or letter grading.

**120A. Elementary Ancient Egyptian (5)** Lecture, five hours. Course 120A is requisite to 120B, which is requisite to 120C. Introduction to hieroglyphic script and phonology and morphology of Middle Egyptian. Basic rules of Middle Egyptian syntax, with focus on nominal, adjectival, and adverbial sentences. P/NP or letter grading.

**120B. Elementary Ancient Egyptian (5)** Lecture, five hours. Requisite: course 120A. Verbal system and syntax of verbal sentences of Middle Egyptian. P/NP or letter grading.

**120C. Elementary Ancient Egyptian (5)** Lecture, five hours. Requisite: course 120B. Reading of authentic Egyptian texts to deepen knowledge of Egyptian grammar and to acquire familiarity with aims and methods of philology, study of ancient texts. P/NP or letter grading.

**121A. Intermediate Ancient Egyptian Readings (5)** Lecture, three hours. Requisite: course 120C. Course 121A is requisite to 121B, which is requisite to 121C. Thematic readings in ancient Egyptian historical, religious, and literary texts. May be repeated for credit. P/NP or letter grading.

**121B. Intermediate Ancient Egyptian Readings (5)** Lecture, three hours. Requisite: course 121A. Thematic readings in ancient Egyptian historical, religious, and literary texts. May be repeated for credit. P/NP or letter grading.

**121C. Intermediate Ancient Egyptian Readings (5)** Lecture, three hours. Requisite: course 121B. Thematic readings in ancient Egyptian historical, religious, and literary texts. May be repeated for credit. P/NP or letter grading.

**122. Elementary Ancient Egyptian: Intensive (12)** Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Egyptian to qualify for more advanced courses. Intensive course equivalent to courses 120A, 120B, and 120C. Introduction to hieroglyphic script and phonology and morphology of Middle Egyptian, with emphasis on verbal systems, pronunciation, reading, and grammar. Offered in summer only. P/NP or letter grading.

**C123A. Coptic (5)** Lecture, three hours. Introduction to Coptic, final phase of Egyptian language, which is attested in writing from circa 300 to 1400 CE. Devoted to learning Coptic alphabet, grammar, and vocabulary (Sahidic dialect), with particular emphasis on historical linguistics. Concurrently scheduled with course C223A. P/NP or letter grading.

**C123B. Coptic (5)** Lecture, three hours. Requisite: course C123A. Introduction to Coptic, final phase of Egyptian language, which is attested in writing from circa 300 to 1400 CE. Introduction to variety of Coptic textual genres, from hagiographies to homilies, magical spells, private letters, legal contracts, and Gnostic Gospels found in Nag Hammadi. Readings in texts in dialects other than Sahidic (Bohairic, Fayumic, Akhmimic). Concurrently scheduled with course C223B. P/NP or letter grading.

**124. Middle Egyptian Technical Literature (4)** Lecture, three hours. Requisite: course 121C. Reading of Middle Egyptian technical literature in hieroglyphic transcription. Medical, veterinary, mathematical, and astronomical texts included. P/NP or letter grading.

**125A. Digital Cultural Mapping Core Course A: Place, Time, and Digital World (4)** Lecture, three hours; discussion, one hour. Introduction to how emerging digital mapping technologies like geographic information systems (GIS), virtual globes, and three-dimensional modeling are being utilized as new means of inquiry in the humanities and social sciences. Provides students with critical apparatus needed to effectively, responsibly, and heuristically use technology in digital cultural mapping projects. Analysis of different forms of visual presentation, with focus on data representation through mapping, reasoning, and argumentation to learn to critically assess map-based presentations. Tracing of history of mapping and spatial representation of place to learn how

mapping has always been connected with societal structures, politics, economics, and culture because maps do not merely represent reality, but also produce reality by structuring world and organizing knowledge about it. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

**125B. Digital Cultural Mapping Core Course B: Google Earth, Geographic Information Systems, Hypercities, and Timelines (4)** (Same as Architecture and Urban Design M125B.) Laboratory, three hours; discussion, one hour. Enforced prerequisite: course 125A. Hands-on laboratory-based investigation of emerging digital mapping technologies, including instruction in Web-based mapping applications, virtual globes, and geographic information systems (GIS). Critique and creation of maps of cultural phenomena, applying skills students learned in course 125A to real-world data sets in humanities and social sciences. By mastering emerging technologies in field of digital cultural mapping, students take part in evaluation and production of sophisticated visual representations of complex data, becoming active participants in development of this new field. How to use suite of GIS and neogeography tools. Fostering of creative approaches to and engagement with mapping technologies: What new questions can be asked and answered using these technologies? How does one reason, argue, and solve real-world problems through digital cultural mapping? Design, development, and implementation of student mapping-based research projects. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

**125C. Digital Cultural Mapping Core Course C: Summer Research (4)** (Same as Architecture and Urban Design M125C.) Laboratory, three hours; fieldwork, one hour. Enforced prerequisite: course M125B or Architecture and Urban Design M125B. Participation in collaborative geographic information systems (GIS) research project in humanities or social sciences using skills learned in courses 125A and M125B. Gathering and input of datasets from real-world sources, creating visual representations of data through production of digital maps, and performing analysis of larger dataset to answer specific research questions. Final oral presentation required that details student work and provides critical analysis of source material and technological/methodological issues inherent to type of GIS used for investigation. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. Offered in summer only. P/NP or letter grading.

**130. Ancient Egyptian Religion (5)** (Same as Religion M132.) Lecture, three hours; discussion, one hour. Introduction to religious beliefs, practices, and sentiments of ancient Egypt to study Egyptian religion as coherent system of thought and sphere of action that once served as meaningful and relevant framework for understanding physical reality and human life for inhabitants of Nile Valley. General principles as well as developments through time (circa 3000 BC to 300 CE). Topics include mythology, temple and cult, magic, and personal piety. P/NP or letter grading.

**135. Religion in Ancient Israel (4)** (Same as Religion M135.) Lecture, three hours. Introductory survey of various ancient Israelite religious beliefs and practices, their origin, and development, with special attention to diversity of religious practice in ancient Israel and Canaan during 1st millennium BCE. P/NP or letter grading.

**140A. Elementary Sumerian (4)** Lecture, three hours. Introduction to Sumerian, oldest cuneiform language, with examples attested in Mesopotamia from 3rd millennium BCE to 1st century CE. Elementary grammar, syntax, and overview of cuneiform as used by Sumerian. Focus on structure of nominal and verbal chain, through reading of basic royal inscriptions and other texts. P/NP or letter grading.

**140B. Elementary Sumerian (4)** Lecture, three hours. Prerequisites: Semitics 140A, 140B. Elementary grammar and reading of royal inscriptions, letters, and administrative texts from Ur III period. P/NP or letter grading.

**140C. Elementary Sumerian (4)** Lecture, three hours. Prerequisites: Semitics 140A, 140B. Elementary grammar and reading of royal inscriptions, letters, and administrative texts from Ur III period. P/NP or letter grading.

**141. Elementary Akkadian (4)** (Same as Semitic M140A.) Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian. P/NP or letter grading.

**150A. Heroes, Gods, and Monsters: Literature and Epic in Mesopotamia (4)** Lecture, three hours. Survey of literary texts and traditions the ancient Near East, specifically Mesopotamia, from Old Akkadian (circa 2300 BCE) to Neo-Babylonian (circa 600 BCE) period. Texts read in English translation include literary texts, royal inscriptions, incantations, royal and divine hymns, with focus on literary epics, particularly first millennium BCE Epic of Gilgamesh. Discussion of texts, their narratives, and their divine and human actors. Discussion of sociohistorical context for cuneiform (Sumerian and Akkadian) texts and royal, religious, and cultural roles of different texts. P/NP or letter grading.

**150B. Survey of Ancient Near Eastern Literatures in English: Egypt (4)** Lecture, three hours. Preparation: familiarity with Egyptian history. Enforced prerequisites: courses M103A, M103B. Survey of 3,000 years of ancient Egyptian literature. Reading of Egyptian texts in translation to study Egypt's intellectual history and trace transformations in its construction of cultural identity. Topics include invention of writing, autobiography, wisdom texts, narratives, royal inscriptions, and hymns. Discussion of text analysis such as narratology. May be taken independently for credit. P/NP or letter grading.

**160. Origins of Agriculture (4)** Lecture, three hours. Prerequisite: Anthropology 8. Overview of prehistory of ancient Near East, with focus on human origins, origins of agriculture, and first cities. P/NP or letter grading.

**161. Archaeology of Prehistoric Mesopotamia (4)** Lecture, three hours. Survey of prehistoric archaeological periods in Mesopotamia. P/NP or letter grading.

**162. Archaeology, Identity, and Bible (5)** Lecture, three hours; discussion, one hour. Introduction of archaeological record of southern Levant (ancient Israel) from Bronze Age through Achaemenid Period (circa 2500-332 BC) in combination with current understandings of genre, authorship, and historical value of Hebrew Bible. Ancient Israelite identities are traced through combination of archaeological and textual sources. Social, religious, and political traditions of ancient Israel and Judah are interpreted in context of both earlier Bronze Age traditions and Israel's Iron Age neighbors. Archaeological and textual data for identities, such as Amorites, Canaanites, Phoenicians, Egyptians, Assyrians, and Babylonians, form basis for evaluating construction and maintenance of various biblical identities. Introduction to theoretical and methodological issues involving historical archaeology of ancient Israel and Levant, and possibilities for investigating negotiation of identity in archaeological record. P/NP or letter grading.

**CM163. Archaeology of Iran (4)** (Same as Iranian CM163.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM259. P/NP or letter grading.

**164. Archaeology of Levant (4)** (Formerly numbered 164.) (Same as Archaeology M164, Art History M111E, and Middle Eastern Studies M164.) Lecture, three hours. Survey of archaeology of Levant from late fifth millennium through arrival of Alexander the Great (circa 4500-332 BC). Examination of social, economic, political, and cultural developments through archaeological finds from geographic region bounded by Anatolia and Mesopotamia on north, Egypt to south, and Arabian Peninsula to east. Archaeological methods, theory, and practice are addressed; and geographic, environmental, climatological, and textual data are employed to establish broader context for Levantine traditions. P/NP or letter grading.

**C165. Egyptian Archaeology (4)** Seminar, three hours. Opportunity to research aspects of topics in ancient Egyptian archaeology. Topics vary each year. May be repeated for credit. Concurrently scheduled with course C266. P/NP or letter grading.

**166. Art and Death in Ancient Egypt (4)** (Formerly numbered 166.) (Same as Art History M110D.) Lecture, four hours. Ways of death, burial, funerary ritual, and afterlife beliefs in ancient Egypt, as well as in ancient Near East and Nubia, with focus on ancient visual materials—both objects and architecture—from Predynastic to Roman periods. P/NP or letter grading.

**167. Magic in Ancient World (4)** (Same as Classics M167.) Lecture, three hours; discussion, one hour (when scheduled). Prerequisite: Classics 10 or 20. Exploration of art of influencing natural course of events by occult means as practiced in ancient world at large. Coverage of beliefs in supernatural forces, rites aimed at controlling these forces effectively, and character and social roles of ritual experts in various cultures of ancient world. Source material includes types of magical spells, literary texts about magic and magicians, and artifacts such as amulets and ritual implements. P/NP or letter grading.

**168A. Elementary Hittite (4)** (Formerly numbered M168.) (Same as Indo-European Studies M168A.) Lecture, three hours. Recommended preparation: knowledge of language with case system. Introduction to Hittite grammar by series of graded lessons covering morphology and syntax, followed by readings of selected texts from variety of genres. P/NP or letter grading.

**168B. Elementary Hittite (4)** (Same as Indo-European Studies M168B.) Lecture, three hours. Recommended prerequisite: course M168A. Readings of selected Hittite texts from variety of genres and historical periods. Individual topics in synchronic and historical grammar of Hittite and in history and culture of Hittites are treated in detail. P/NP or letter grading.

**CM169. Introduction to Archaeological Sciences (4)** (Same as Anthropology CM110Q.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of mate-

rials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM269. P/NP or letter grading.

**170. Bible and Its Interpreters (4)** (Same as Religion M172.) Lecture, three hours. Knowledge of original languages not required. Bible (Old and New Testaments) as book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to present. P/NP or letter grading.

**172. Elementary Luwian (4)** (Same as Indo-European Studies M172.) Lecture, three hours. Recommended preparation: knowledge of language with case system. Introduction to Luwian grammar through lectures covering morphology and syntax, and readings of selected hieroglyphic and cuneiform texts. P/NP or letter grading.

**175. Conceptions of Race in Ancient Egypt (4)** Lecture, three hours; discussions, one hour. Exploration of how racial hierarchies are created and maintained within context of ancient Egyptian culture. Race of ancient Egyptians is still at stake and tied to larger issues of racial and ethnic inequalities, prejudices, and oppression. Examination of modern issues invites comparison with conception of race in ancient world, which was not necessarily equivalent to our own. By consulting diverse group perspectives, including those of early scholars, contemporary anthropologists, Afrocentrist scholars and artists, Hebrew Bible, ancient Egyptian evidence, and ancient Nubian evidence, conception of race is revealed to be complex, fluid, and contradictory. These conceptions were and are used to construct variety of equally contradictory hierarchies, often based on same evidence. P/NP or letter grading.

**C177. Variable Topics in Ancient Near East (4)** Lecture, three hours; discussion, one hour. Variable topics; consult Schedule of Classes for topics to be offered in specific term. Concurrently scheduled with course C277. P/NP or letter grading.

**179. Cultural Heritage and Identity Representation: Creating Fowler and Virtual Exhibit (4)** (Same as Art History M179.) Lecture, three hours; discussion, one hour. Exploration of what it takes to run museum and create exhibit. Introduction to different types of museum work, ranging from collecting and curation, to research, conservation, presentation, visitor experience, and management. Students jointly create exhibit based on Fowler Museum collection. Students research and discuss context and different stakeholders that relate to material under consideration. Consideration of narrative exhibit and how objects and their arrangement convey deliberate or accidental messages. Consideration of audiences as well as original context of each object. Focus on people behind objects, technologies, or material characteristics. P/NP or letter grading.

**185D. Religions of Ancient Near East (4)** (Same as History M185D and Religion M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Ancient Near East (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Ancient Near East (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M201. Archaeological Research Design (4)** (Same as Anthropology M201C and Archaeology M201C.) Seminar, three hours. Requisites: Archaeology M201A, M201B. How to design archaeological projects in preparation for MA thesis or PhD phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

**208. Topics in Ancient Iranian History (4)** (Same as History M210 and Iranian M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

**210. Late Egyptian (4)** Lecture, three hours. Requisites: courses 121A, 121B, 121C. Late Egyptian grammar and reading of both hieroglyphic and hieratic texts. May be repeated for credit. S/U or letter grading.

**211A. Egyptian Texts of Greco-Roman Period (4)** Lecture, three hours. Introduction to grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types. Letter grading.

**211B. Egyptian Texts of Greco-Roman Period (4)** Lecture, three hours. Introduction to grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types. Letter grading.

**215. Readings in Middle Kingdom Literature (4)** Seminar, three hours. Enforced requisites: courses 120A, 120B, 120C. Survey of Middle Kingdom literature through close readings of texts in original language and evaluation of current scholarship on these texts. Students hone their knowledge of Middle Egyptian grammar and become familiar with philological methods in study of Egyptian literature. S/U or letter grading.

**220. Seminar: Ancient Egypt (4)** Seminar, three hours. May be repeated for credit. S/U or letter grading.

**221A. Demotic (4)** Lecture, three hours. Requisite: course 121C. Course 221A is requisite to 221B. Introduction to Demotic grammar and orthography. Reading of texts from various genres. S/U or letter grading.

**221B. Demotic (4)** Lecture, three hours. Requisite: course 221A. Introduction to Demotic grammar and orthography. Reading of texts from various genres. May be repeated for credit with topic change. S/U or letter grading.

**C223A. Coptic (5)** Lecture, three hours. Introduction to Coptic, final phase of Egyptian language, which is attested in writing from circa 300 to 1400 CE. Devoted to learning Coptic alphabet, grammar, and vocabulary (Sahidic dialect), with particular emphasis on historical linguistics. Concurrently scheduled with course C123A. S/U or letter grading.

**C223B. Coptic (5)** Lecture, three hours. Requisite: course C223A. Introduction to Coptic, final phase of Egyptian language, which is attested in writing from circa 300 to 1400 CE. Introduction to variety of Coptic textual genres, from hagiographies to homilies, magical spells, private letters, legal contracts, and Gnostic Gospels found in Nag Hammadi. Readings in texts in dialects other than Sahidic (Bohairic, Fayumic, Akhmimic). Concurrently scheduled with course C123B. S/U or letter grading.

**225. Readings on the Ancient Near East. (2, 4)** Seminar, three hours. Overview of ancient Near Eastern texts in different languages, including Akkadian, Hittite, Luwian, Sumerian, and others. Weekly focus on reading directly from primary texts, using either hand copy or photographs. Discussion of secondary literature, as assigned, on the broader context of the texts themselves. May be repeated for credit. S/U or letter grading.

**230. Seminar: Ancient Syria/Palestine (4)** Seminar, three hours. Examination of selected topics on political, social, and intellectual history of ancient Israel. Exploration of how historical, social, and political contexts shaped and influenced interpretation and use of biblical texts. May be repeated for credit. S/U or letter grading.

**240A. Seminar: Sumerian Language and Literature (4)** Seminar, two hours. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history. S/U or letter grading.

**240B. Seminar: Sumerian Language and Literature (4)** Seminar, two hours. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history. S/U or letter grading.

**240C. Seminar: Sumerian Language and Literature (4)** Seminar, two hours. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history. S/U or letter grading.

**CM259. Archaeology of Iran (4)** (Same as Iranian CM259.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM163. S/U or letter grading.

**260. Seminar: Ancient Near Eastern Archaeology. (2 to 4)** Seminar, two hours. May be repeated for credit. S/U or letter grading.

**261. Practical Field Archaeology. (2 to 8)** Fieldwork, two hours. Participation in archaeological excavations or other archaeological research in Near East under staff supervision. May be repeated for credit. S/U or letter grading.

**262. Seminar: Object Archaeology (4)** Seminar, two hours; laboratory, one hour. Selected topics in analysis and interpretation of Near Eastern archaeological finds in museum collections. Students work with objects in Heermanek Collection of Los Angeles County Museum of Art. S/U or letter grading.

**263. Seminar: Egyptian Monuments (4)** Seminar, two hours. Selected monuments and sites in Egypt, including Delta, Nile Valley, desert sites, wadis, oases, and border regions. Architecture and decoration of temples and tombs, statuary and monuments, settlement and use history, text translation of appropriate documents, including stelae, monumental inscriptions, or pertinent socioeconomic texts. May be repeated. S/U or letter grading.

**264. Egyptian Museum Collections (4)** Seminar, two hours; research group meeting, one hour. Ancient Egyptian museum collections around world, data sets, provenance and dating studies, collection history and agenda, museology, and exhibition history. May be repeated for credit with consent of instructor. S/U or letter grading.

**265. Depositional History and Stratigraphic Analysis (4)** (Same as Archaeology M265.) Lecture, two hours. Theoretical understanding of depositional processes ("laws") which lead to site formation and of stratigraphic procedures to be used in recovery of embedded cultural materials. Study of issues covered in literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with help of specialists. S/U or letter grading.

**C266. Egyptian Archaeology (4)** Seminar, three hours. Opportunity to research aspects of topics in ancient Egyptian archaeology. Topics vary each year. May be repeated for credit. Concurrently scheduled with course C165. S/U or letter grading.

**C267A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom (4)** Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM101A. S/U or letter grading.

**C267B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period (4)** Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. Concurrently scheduled with course CM101B. S/U or letter grading.

**CM269. Introduction to Archaeological Sciences (4)** (Same as Anthropology CM210Q.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM169. S/U or letter grading.

**270. Old Egyptian (4)** Seminar, three hours. Enforced requisites: courses 120A, 120B, 120C, or one year of introductory Middle Egyptian. Advanced reading class in Old Egyptian, earliest of five Egyptian language phases, to prepare students for independent research on Egyptian texts dating to Old Kingdom (circa 2800 to 2100 BCE). Through close reading of texts in original language and original format, students learn grammar, orthography, and phraseology of Old Kingdom texts as well as tools and methods of epigraphy. Focus on tomb biographies, royal edicts, and Pyramid Texts. Letter grading.

**C277. Variable Topics in Ancient Near East (4)** Lecture, three hours; discussion, one hour. Variable topics; consult Schedule of Classes for topics to be offered in specific term. Concurrently scheduled with course CM177. S/U or letter grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Arabic Courses

### Lower Division

**1A. Elementary Standard Arabic (5)** Lecture, six hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Arabic. Introduction to formal Arabic (modern standard Arabic), including listening, speaking, reading, and writing. P/NP or letter grading.

**1B. Elementary Standard Arabic (5)** Lecture, six hours. Enforced requisite: course 1A. Not open to students with prior knowledge of Arabic. Introduction to formal Arabic (modern standard Arabic), including listening, speaking, reading, and writing. P/NP or letter grading.

**1C. Elementary Standard Arabic (5)** Lecture, six hours. Enforced requisite: course 1B. Not open to students with prior knowledge of Arabic. Introduction to formal Arabic (modern standard Arabic), including listening, speaking, reading, and writing. P/NP or letter grading.

**8. Elementary Standard Arabic: Intensive (12)** Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to fundamentals of standard Arabic, including pronunciation, grammar, and Arabic script, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102A. Intermediate Standard Arabic (4)** Lecture, four hours. Enforced requisite: course 1C or 8. Course 102A is requisite to 102B, which is requisite to 102C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intermediate formal Arabic, including listening, speaking, reading, and writing. P/NP or letter grading.

**102B. Intermediate Standard Arabic (4)** Lecture, four hours. Requisite: course 102A. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intermediate formal Arabic, including listening, speaking, reading, and writing. P/NP or letter grading.

**102C. Intermediate Standard Arabic (4)** Lecture, four hours. Requisite: course 102B. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intermediate formal Arabic, including listening, speaking, reading, and writing. P/NP or letter grading.

**103A. Advanced Arabic (4)** Lecture, four hours. Enforced requisites: courses 102A, 102B, 102C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Advanced formal Arabic, including grammar, composition, and readings from classical and modern texts. P/NP or letter grading.

**103B. Advanced Arabic (4)** Lecture, four hours. Enforced requisites: courses 102A, 102B, 102C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Advanced formal Arabic, including grammar, composition, and readings from classical and modern texts. P/NP or letter grading.

**103C. Advanced Arabic (4)** Lecture, two and one half hours. Enforced requisites: courses 102A, 102B, 102C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Advanced formal Arabic, including grammar, composition, and readings from classical and modern texts. P/NP or letter grading.

**CM106. Qur'an (4)** (Formerly numbered CM106) (Same as Religion M108.) Lecture, three hours. Introduction to Qur'an, its early history, and form and function as scripture in Muslim history, civilization, and culture. Focus also on Qur'anic interpretation, its relationship to Islamic law, and Qur'an in contemporary discourses such as human rights, feminism, and contemporary reform movements. Primary sources include excerpts from Qur'an, Qur'anic interpretation, and selected writings of Muslim thinkers and reformists. Strong focus on analytical and writing skills through in-class assignments and discussion. Concurrently scheduled with course C206. Letter grading.

**107. Islam in West (5)** (Same as Islamic Studies CM107 and Religion M107.) Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. P/NP or letter grading.

**108. Summer Intensive Intermediate Arabic (12)** Lecture, and discussion, 20 hours. Enforced requisite: course 1C. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intensive course equivalent to courses 102A, 102B, and 102C. Intermediate formal Arabic, including listening, speaking, reading, and writing. Offered in summer only. P/NP or letter grading.

**110. One Thousand and One Nights/Alf Layla Wa-Layla (4)** (Same as Comparative Literature M110.) Lecture, three hours. Knowledge of Arabic not required. Since its appearance in Europe in 1704, *One Thousand and One Nights* is most well-known work of Arabic literature in West. Examination of cycle of tales more commonly known as *Arabian Nights*, including history of its translation, contemporary oral performances of tales in Arabic-speaking world, literary emergence of vernacular language in relation to classical Arabic, and Western appropriations of tales in music, film, and novels (Ravel, Rimsky-Korsakov, Barth, Poe, and Walt Disney). P/NP or letter grading.

**111A. Elementary Spoken Egyptian Arabic (4)** Lecture, three hours. Enforced requisite: course 1C or 8. Course 111A is enforced requisite to 111B, which is enforced requisite to 111C. Not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

**111B. Elementary Spoken Egyptian Arabic (4)** Lecture, three hours. Enforced requisites: courses 1C (or 8), 111A. Not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

**111C. Elementary Spoken Egyptian Arabic (4)** Lecture, three hours. Enforced requisites: courses 1C (or 8), 111B. Not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

**111S. Summer Intensive Elementary Egyptian Arabic (4)** Lecture, three hours. Knowledge of Arabic not required; not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

**112A. Advanced Spoken Egyptian Arabic (4)** Lecture, three hours. Study of Egyptian colloquial Arabic for heritage speakers or students who have completed courses 1A, 1B, 1C. P/NP or letter grading.

**112B. Advanced Spoken Egyptian Arabic (4)** Lecture, three hours. Study of Egyptian colloquial Arabic for heritage speakers or students who have completed courses 1A, 1B, 1C. P/NP or letter grading.

**112C. Advanced Spoken Egyptian Arabic (4)** Lecture, three hours. Study of Egyptian colloquial Arabic for heritage speakers or students who have completed courses 1A, 1B, 1C. P/NP or letter grading.

**115. Studies in Arabic Dialectology (4)** Lecture, three hours. Introduction to one spoken dialect of Arabic, with emphasis on speaking and listening comprehension. Dialects vary from year to year based on student interest and instructor availability and may include Iraqi, Levantine, North African, or Gulf Arabic. May be repeated for credit. P/NP or letter grading.

**117. Levantine Arabic (4)** Lecture, three hours. Orientation to Levantine Arabic, collection of dialects used in daily communication in Syria, Lebanon, Jordan, and Palestine. There are several local, geographical, and social sub-varieties of spoken Arabic in the Levant area, but the differences between these are small compared with the large amount of shared vocabulary and structure. Focus on Syrian Colloquial Arabic. In particular, students establish a foundational knowledge in the widely-understood Damascene dialect (Shaami), which is indigenous to and spoken primarily in Damascus, the capital city of Syria. P/NP or letter grading.

**120. Islamic Texts (4)** Lecture, four hours. Requisite: course 103C. Readings from Qur'an, Tafsir, Hadith, Fiqh. May be repeated for credit. Letter grading.

**123. Oral Literature and Performance of Arab World (4)** (Same as Comparative Literature M123.) Lecture, three hours. Knowledge of Arabic not required. Introduction to study of living oral traditions of troubadours, storytellers, oral poets, and performers in Arabic-speaking Middle East. P/NP or letter grading.

**130. Classical Arabic Texts (4)** Lecture, four hours. Requisite: course 103C. Readings from premodern literary texts, with grammatical and syntactical analysis. May be repeated for credit. Letter grading.

**132. Philosophical and Kalam Texts (4)** Lecture, three hours. Requisite: course 120. Readings in premodern philosophy and theology. May be repeated for credit. P/NP or letter grading.

**140. Readings in Modern Standard Arabic (4)** Lecture, four hours. Requisite: course 103A, or consent of instructor. Development of reading, speaking, and writing abilities in modern standard Arabic, as well as cultural knowledge, through film screenings, discussions, written compositions, verbal presentations, and reading authentic literary texts from across Arabic-speaking world. Prepares students for more advanced literary Arabic courses. P/NP or letter grading.

**C141. Modern Arabic Literature (4)** Lecture, three hours. Requisite: course 102C. Conducted in English and Arabic, with all required readings in original Arabic only. Readings in modern Arabic literature, variably organized across or around particular trends, genres, topics, canonical authors, regional, or national literatures, mixing thematic and formal analyses of literary and critical texts and making use of film, video-clip, and song in approaching literary culture. May be repeated for credit. Concurrently scheduled with course C241. Letter grading.

**142. Arabic Media (4)** Lecture, four hours. Requisite: course 103A. Development of facility with language of Arabic press and broadcasting. Activities include monitoring current materials via Internet; transcribing, translating, and summarizing; writing original reports in Arabic; and oral presentations and discussions. May be repeated for credit. P/NP or letter grading.

**148. Contemporary Arab Film and Song (4)** (Same as Comparative Literature M148.) Seminar, three hours. Exploration of conjunctions between contemporary Arab film and song and between popular cultures and cultures of commitment (Itizam), with possible focus on specific genres such as realist/neo-realist Arab film; feminist Arab film or popular Arab film and song; topics such as nation, gender, and representation or democracy and human rights or censorship, reception, and resistance. Possible examination of various national cinemas such as Tunisian, Egyptian, Moroccan, Algerian, and Palestinian. Various musical genres such as Rai, Mizoued, and hip-hop also examined in relation to emergence not only of national cinemas, national music industries, and iconic singers but also of video clip, satellite TV, star academy, and reality shows—all products of transnational and pan-Arab mass media. P/NP or letter grading.

**150. Classical Arabic Literature in English (4)** Lecture, three hours. Readings in English; knowledge of Arabic not required. Survey of premodern Arabic cultural production in its political, religious, and social contexts. Coverage of pre-Islamic Arabia, rise of Islam, and major themes of Southwest Asian history, along with significant figures and moments in literature and culture of pre-modern period. Consideration of selected modern responses to Arabic tradition. P/NP or letter grading.

**151. Modern Arabic Literature in English (4)** (Same as Comparative Literature M167.) Lecture, three hours. Designed for upper-division literature majors. Topics may include constructions of otherness in modern Arab culture; East-West debate; memory, trauma, and mourning; violence, narrative, and ethics; globalization, oil, and cultural insurgency; Arab culture in transnational context or questions of reception, exoticism, translation, and marketing. Genres may include prison narratives; novel of terror; memoirs by women and/or by refugees and exiles; 19th- and 20th-century travel narratives; Arabic romantic poetry; literature of pre-1948; rise of Arab novel. Areas may range from ge-

neric look at Arab world to narrow focus on Maghreb or one country such as Algeria, Palestine, Iraq, Lebanon, or Egypt. May also be organized around Arab literatures written in one specific language, namely English, Arabic, or French. Letter grading.

**155. Al-Andalus: Literature of Islamic Spain (4)** (Same as Comparative Literature M119.) Lecture, three hours. Study of literature of Islamic Spain to learn about interaction of Arabic and Western and Arabic and Jewish cultures and to recognize Islamic culture as vital force in European life and letters. P/NP or letter grading.

**171. Culture Area of Maghrib (North Africa) (4)** (Same as Anthropology M166Q and History M108C.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

**177. Variable Topics in Arabic (4)** Lecture, three hours. Variable topics; consult schedule of classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**178. Sociolinguistics of Arabic (4)** Lecture, three hours. Exploration of range of topics in Arabic sociolinguistics, including diglossia and dialect groups in the Arab world, regional variation, codeswitching, language attitudes and ideologies, social identity, bilingualism, digital media and language use, heritage-Arabic speakers, and applied sociolinguistics pertaining to the teaching of Arabic as a foreign language. Examination of language used by some Arabic speech communities in both casual and professional settings, with focus on how language affects social lives and how social organization affects use of language. P/NP or letter grading.

**180. Linguistics Analysis of Arabic (4)** Lecture, four hours. Requisite: course 102C. Linguistic description of Arabic in both its modern standard and dialect forms. Introduction to linguistic analysis of Arabic phonology, morphology, and syntax and to linguists' approaches to specific problems posed by Arabic grammar and dialectology. Letter grading.

**181. Translating Arabic (4)** Seminar, three hours. Preparation: advanced proficiency in English and Arabic (at least three years of Arabic instruction or equivalent). Open to both native and nonnative speakers of English and Arabic. Training of students in methodology of translation from Arabic into English, with focus on producing accurate and readable English versions of Arabic texts from variety of fields. Close reading and written translation of Arabic texts, with review of linguistic and cultural difficulties that arise in course of translation. Texts may include classical Arabic literature (religion, historiography), modern writing (literature, media), and spoken Arabic (television, radio), based on student interest. Letter grading.

**188FL. Special Studies: Readings in Arabic (2)** Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in affiliated main course. Primary readings and additional work in Arabic to enrich and augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Arabic (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Arabic (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**C206. Qur'an (4)** Lecture, three hours. Introduction to Qur'an, its early history, and form and function as scripture in Muslim history, civilization, and culture. Focus also on Qur'anic interpretation, its relationship to Islamic law, and Qur'an in contemporary discourses such as human rights, feminism, and contemporary reform movements. Primary sources include excerpts from Qur'an, Qur'anic interpretation, and selected writings of Muslim thinkers and reformists. Strong focus on analytical and writing skills through in-class assignments and discussion. Concurrently scheduled with course CM106. Letter grading.

**220. Seminar: Islamic Texts (4)** Seminar, three hours. Major Islamic thinkers and their works from classical period to modern times. Coverage of doctrines and hermeneutics of various schools of thought in Islam, such as Ahl al-sunna wa'l-jama'a, Shi'a, Mu'tazila, and Sufis. May be organized around one author and his works, multiple authors and their works, or specific topic with representative readings from various schools. Exploration of secondary literature in Arabic and other languages for student research papers. May be repeated for credit. S/U or letter grading.

**231. Texts in Judeo-Arabic (4)** (Same as Hebrew M231.) Lecture, three hours. Requisites: course 102C, Hebrew 102C. Reading of Judeo-Arabic texts by Maimonides (medieval religion, medicine, philosophy) and more recent texts in Judeo-Arabic dialects of Iraq and Egypt, with discussion of grammar and deviations from norms of classical Arabic. S/U or letter grading.

**C241. Modern Arabic Literature (4)** Lecture, three hours. Requisite: course 102C. Conducted in English and Arabic, with all required readings in original Arabic only. Readings in modern Arabic literature, variably organized across or around particular trends, genres, topics, canonical authors, regional, or national literatures, mixing thematic and formal analyses of literary and critical texts and making use of film, video-clip, and song in approaching literary culture. May be repeated for credit. Concurrently scheduled with course C141. Letter grading.

**250. Seminar: Premodern Arabic Literature (4)** Seminar, three hours. Readings in Arabic texts from variety of periods and genres, along with appropriate secondary literature. Topics include pre-Islamic poetry and oratory, Qur'an, Umayyad and Abbasid poetry and literary prose, Hadith and Fiqh, historiography, biography, geography, medicine, mathematics, theology, asceticism, and mysticism. May be repeated for maximum of 24 units. S/U or letter grading.

**251. Seminar: Modern Arabic Literature (4)** Seminar, three hours; discussion, one hour. Requisite: course C141. Selected topics in modern and contemporary Arabic prose and poetry. May be repeated for credit. Letter grading.

**255. Literatures and Cultures of Maghreb (4)** (Same as Comparative Literature M251.) Seminar, three hours. Limited to graduate students. Examination of traditionally diverse literatures of Maghreb in their multiple and competing contexts of language and gender politics, religious and cultural formations, Pan-Arabism and postcolonial nationhood, Third-Worldism and economic development, modernity and globalization, immigration and citizenship, soccer industry and Rai music, mass media and Star Academy Maghreb, and more. Readings of literatures in English and in English translations from different Maghrebian languages (particularly Arabic and French) in conjunction with theories of language and linguistic pluralism, cultural translation, deconstruction, and host of other relevant theories of gender, globalization, and postcolonial cultural studies. S/U or letter grading.

**275. Encountering Arabic Manuscripts: Introduction to Arabic Paleography and Critical Edition of Manuscripts (4)** Lecture, three hours; discussion, one hour. Requisite: course 103C. Introduction to Arabic paleography and how to prepare editions of medieval manuscripts with critical apparatus and stemma. During past decades enormous number of previously unknown Arabic manuscripts have been discovered. While vast range of medieval texts have been published in editions of varying quality, equally large number of manuscripts remain unpublished. UCLA has outstanding collections of Near Eastern manuscripts in Arabic, Persian, and Ottoman Turkish, primarily in fields of medicine, literature, philology, theology, law, and history. It is rich in works related to studies of theologians and scholars at different centers of learning in Iran during Safavid period noted for works of Shiite theology, Islamic sciences, and philosophy. Course opens this treasure to graduate students interested in editing and/or translating manuscripts. S/U or letter grading.

**288. Modern Arab Thought (4)** (Same as Comparative Literature M288.) Seminar, three hours. While much has been written and said about resurgence and spread of political Islam after collapse of ideology of secular nationalism and failure of Arab left to apprehend exigencies of postrevolutionary/postcolonial moment, little has been devoted to less sensational topic of modern Arab thought despite unmistakable proliferation of critical output produced by Arab thinkers and artists in aftermath of 1967. Course addresses and redresses this glaring imbalance by considering new cultural material—literary, critical,



philosophical, artistic, and journalistic—produced before and after al-Nahda but mostly before and after 1967 and fosters insightful approaches to unlikely coexistence in Arab contemporaneity of ever-deepening and generalized crisis and of steady and consolidated development (if not effervescence) of cultural and artistic production. S/U or letter grading.

**496. Arabic Language Pedagogy Course (2)** Seminar, three hours. Taught in English and Arabic. Discussion of multiple topics pertaining to Arabic language teaching and learning. Content designed to address Arabic language pedagogy, with emphasis on practical issues and applications of different language teaching methodologies. Activities include lectures, classroom observations, and teaching demonstrations. Participants collaborate on projects that investigate issues related to teaching different language skills, such as listening, speaking, reading, and writing. S/U grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Armenian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Modern Western Armenian (5)** Lecture, five hours. Course 101A is recommended requisite to 101B, which is recommended requisite to 101C. Students with knowledge of Armenian should contact instructor to determine appropriate enrollment level. Armenian grammar, conversation, and exercises. P/NP or letter grading.

**101B. Elementary Modern Western Armenian (5)** Lecture, five hours. Recommended requisite: course 101A. Students with knowledge of Armenian should contact instructor to determine appropriate enrollment level. Armenian grammar, conversation, and exercises. P/NP or letter grading.

**101C. Elementary Modern Western Armenian (5)** Lecture, five hours. Recommended requisite: course 101B. Students with knowledge of Armenian should contact instructor to determine appropriate enrollment level. Armenian grammar, conversation, and exercises. P/NP or letter grading.

**102A. Intermediate Modern Western Armenian (5)** Lecture, five hours. Recommended requisite: course 1C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Reading of selected texts, composition, and conversation. May be taken independently for credit. P/NP or letter grading.

**102B. Intermediate Modern Western Armenian (5)** Lecture, five hours. Recommended requisite: course 1C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Reading of selected texts, composition, and conversation. May be taken independently for credit. P/NP or letter grading.

**102C. Intermediate Modern Western Armenian (5)** Lecture, five hours. Recommended requisite: course 1C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Reading of selected texts, composition, and conversation. May be taken independently for credit. P/NP or letter grading.

**103A. Advanced Modern Western Armenian (4)** Lecture, four hours. Recommended requisite: course 102C. Course 103A is recommended requisite to 103B, which is recommended requisite to 103C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Exploration of advanced Western Armenian in following areas of competency: fluency, literacy, accuracy, and proficiency. Use of language to engage literary themes and cultural issues of historical and contemporary significance for Armenian speakers. P/NP or letter grading.

**103B. Advanced Modern Western Armenian (4)** Lecture, four hours. Recommended requisite: course 103A. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Exploration of advanced Western Armenian in following areas of competency: fluency, literacy, accuracy, and proficiency. Use of language to engage literary themes and cultural issues of historical and contemporary significance for Armenian speakers. P/NP or letter grading.

**103C. Advanced Modern Western Armenian (4)** Lecture, four hours. Recommended requisite: course 103B. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Exploration of advanced Western Armenian in following areas of competency: fluency, literacy, accuracy, and proficiency. Use of language to engage literary themes and cultural issues of historical and contemporary significance for Armenian speakers. P/NP or letter grading.

**104A. Elementary Modern Eastern Armenian (5)** Lecture, five hours. Course 104A is recommended requisite to 104B, which is recommended requisite to 104C. Students with knowledge of Western Armenian should contact instructor to determine appropriate enrollment level. Designed for students with little or no prior knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation. P/NP or letter grading.

**104B. Elementary Modern Eastern Armenian (5)** Lecture, five hours. Recommended requisite: course 104A. Students with knowledge of Western Armenian should contact instructor to determine appropriate enrollment level. Designed for students with little or no prior knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation. P/NP or letter grading.

**104C. Elementary Modern Eastern Armenian (5)** Lecture, five hours. Recommended requisite: course 104B. Students with knowledge of Western Armenian should contact instructor to determine appropriate enrollment level. Designed for students with little or no prior knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation. P/NP or letter grading.

**105A. Intermediate Modern Eastern Armenian (5)** Lecture, five hours. Recommended requisite: course 4C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Continuing introduction to Armenian grammar, with greater attention to readings from short stories and simple newspaper articles and film viewing on video. Emphasis on improving students' self expression in idiom, both orally and in written form. May be taken independently for credit. P/NP or letter grading.

**105B. Intermediate Modern Eastern Armenian (5)** Lecture, five hours. Recommended requisite: course 4C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Continuing introduction to Armenian grammar, with greater attention to readings from short stories and simple newspaper articles and film viewing on video. Emphasis on improving students' self expression in idiom, both orally and in written form. May be taken independently for credit. P/NP or letter grading.

**105C. Intermediate Modern Eastern Armenian (5)** Lecture, five hours. Recommended requisite: course 4C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Continuing introduction to Armenian grammar, with greater attention to readings from short stories and simple newspaper articles and film viewing on video. Emphasis on improving students' self expression in idiom, both orally and in written form. May be taken independently for credit. P/NP or letter grading.

newspaper articles and film viewing on video. Emphasis on improving students' self expression in idiom, both orally and in written form. May be taken independently for credit. P/NP or letter grading.

**106A. Armenian Society and Culture (4)** Lecture, four hours. Recommended requisite: course 105C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Discussion of contemporary Armenian social and cultural issues through readings from critical essays, editorials, short stories, and poems written since World War II and film showings. Emphasis on enhancing students' self expression orally and in written form. Each course may be taken independently for credit. Letter grading.

**106B. Armenian Society and Culture (4)** Lecture, four hours. Recommended requisite: course 105C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Discussion of contemporary Armenian social and cultural issues through readings from critical essays, editorials, short stories, and poems written since World War II and film showings. Emphasis on enhancing students' self expression orally and in written form. Each course may be taken independently for credit. Letter grading.

**106C. Armenian Society and Culture (4)** Lecture, four hours. Recommended requisite: course 105C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Discussion of contemporary Armenian social and cultural issues through readings from critical essays, editorials, short stories, and poems written since World War II and film showings. Emphasis on enhancing students' self expression orally and in written form. Each course may be taken independently for credit. Letter grading.

**110. History of Armenian Language (4)** Lecture, three hours. Requisite: course 1C or 4C. Exploration of history of Armenian language as reflected in literature created in Armenian throughout written period (5th through 20th centuries). Use of top-down approach beginning with modern state of Armenian language in its two standard versions (Western and Eastern), then retracing of historical development through formation of New Armenian (17th century), Middle Armenian (17th through 12th centuries), and earliest attested form, Grabar, literary version of ancient Armenian (11th through 5th centuries). Discussion of attempts at reconstructing major features of Armenian phonology and morphology in preliterate period. P/NP or letter grading.

**120. Language in Diaspora: Armenian as a Heritage Language (4)** Lecture, three hours. Comprehensive examination of status of Armenian as heritage language in diasporic context. Introduction to diaspora, particularly in Armenian context, and to heritage languages and heritage learners. Review of development of modern standards of Armenian (Eastern and Western) and special circumstances for each variety in order to position Armenian on sociolinguistic map of heritage languages. Exploration of issues such as linguistic features of heritage speakers, patterns and domains of language use, psychological restraints (i.e., anxiety, fear, etc.) connected with speaking heritage languages, language attitudes with ideologies, and role of language in Armenian identity construction. P/NP or letter grading.

**130. Armenian Civilization under Bagratid Dynasty, 884 to 1064 (4)** Lecture, four hours. Interdisciplinary investigation of interface between sociopolitical and economic factors in creation of works of art (literature, art, architecture, etc.) and social function these works performed in this important period of Armenian history. Letter grading.

**131. Armenian Civilization in Cilician Period, 1080 to 1375 (4)** Lecture, four hours. Interdisciplinary investigation of rise and fall of unique form of Armenian polity established outside homeland and examination of degree to which its social structure and cultural and aesthetic norms were impacted by those of West (Byzantium, Western Europe) and East (Crusader states, Seljuks, Mamluks, Mongols). Letter grading.

**134. Introduction to Armenian Music (4)** (Same as Ethnomusicology M134 and Music M134.) Lecture, three hours. Some amount of formal music study and experience as vocalist or instrumentalist desirable but not essential. Introduction to history, tradition, and scope of music of Armenia. Focus on number of different genres and approaches, and interactions between music and culture, society, and history. P/NP or letter grading.

**150A. Survey of Armenian Literature in English (4)** Lecture, three hours. Knowledge of Armenian not required. P/NP or letter grading.

**C151. Armenian Literature and Canon Formation (4)** Lecture, four hours. Discussion of fundamental themes and genres around which Armenian literary tradition evolved and modalities by which this has been transformed in course of last two centuries as result of exposure to European thought and expressive forms. Concurrently scheduled with course C251. P/NP or letter grading.

**C152. Modern Armenian Drama as Vehicle for Social Critique (4)** Lecture, four hours. Readings of selected plays from 1668 to 1992 from three main genres of tragedy, comedy, and serious drama and featuring works by most significant Armenian playwrights, with focus on their role as commentators on contemporary mores and as agents for social reform. Concurrently scheduled with course C252. Letter grading.

**C153. Art, Politics, and Nationalism in Modern Armenian Literature (4)** Lecture, four hours. Examination of role of literature in modern Armenian society in service to cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Concurrently scheduled with course C253. P/NP or letter grading.

**C155. Issues in Armenian American Literature and Culture (4)** Lecture, four hours. Preparation: reading knowledge of modern Eastern and Western Armenian. Theoretically informed exploration of some of most salient questions related to Armenian American community as reflected in its literature and other cultural artifacts in interaction with its pluralistic American ambience. Concurrently scheduled with course C255. Letter grading.

**160A. Armenian Literature of 19th and 20th Centuries (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Reading of texts and discussion of various genres of modern Armenian literature within context of Armenian cultural renaissance. P/NP or letter grading.

**160B. Armenian Literature of 19th and 20th Centuries (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Reading of texts and discussion of various genres of modern Armenian literature within context of Armenian cultural renaissance. P/NP or letter grading.

**C166. Armenian Film and Culture (5)** Lecture, six hours. Requisite: course 1C or 4C. Overview of development of Armenian cinematography from first talkie to present, with focus on work of most seminal directors from Armenian Republic, as well as various voices from worldwide diaspora. Concurrently scheduled with course C266. P/NP or letter grading.

**170. Armenian Poetry, 1880 to 1930 (4)** Lecture, three hours. Requisite: course 1C or 4C. Examination of process behind creation of range and variety of poetic expression that developed in new literary formats and genres of what became standard modern Eastern and Western Armenian language in second half of 19th century. Special attention to crafting of central practitioners' individual voice, with particular consideration to poetics and aesthetics, continuity and innovation under impact of modernism, and employment of poetic structure as medium for expression of deeper philosophical values. All texts read in original language. P/NP or letter grading.

**171. Variable Topics in Armenian Studies (4)** Lecture, three hours. Examination of major issues in Armenian studies. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**172. Medieval Armenian Art (4)** (Same as Art History M118A.) Lecture, three hours. Examination of cultural and historical impact of Armenian miniature paintings. P/NP or letter grading.

**173. Armenian Painting, 17th to 20th Century (4)** (Same as Art History M118B.) Lecture, three hours. Overview of development of modern Armenian painting out of its matrix in 17th and 18th centuries. P/NP or letter grading.

**188. Variable Topics in Armenian (4)** Lecture, four hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Armenian (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Armenian (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**230A. Elementary Classical Armenian (4)** Lecture, three hours. Course 230A is requisite to 230B, which is requisite to 230C. Introduction to grammar of classical literary language (5th to mid-19th century) and guided readings in narrative prose texts. Letter grading.

**230B. Elementary Classical Armenian (4)** Lecture, three hours. Requisite: course 230A. Introduction to grammar of classical literary language (5th to mid-19th century) and guided readings in narrative prose texts. Letter grading.

**230C. Elementary Classical Armenian (4)** Lecture, three hours. Requisite: course 230C. Intensive review of grammar and reading of select prose and poetic texts. May be taken independently for credit. Letter grading.

**231A. Intermediate Classical Armenian (4)** Lecture, three hours. Requisite: course 230C. Intensive review of grammar and reading of select prose and poetic texts. May be taken independently for credit. Letter grading.

**231B. Intermediate Classical Armenian (4)** Lecture, three hours. Requisite: course 230C. Intensive review of grammar and reading of select prose and poetic texts. May be taken independently for credit. Letter grading.

**231C. Intermediate Classical Armenian (4)** Lecture, three hours. Requisite: course 230C. Intensive review of grammar and reading of select prose and poetic texts. May be taken independently for credit. Letter grading.

**232A. Advanced Classical Armenian (4)** Lecture, three hours. Requisite: course 231A or 231B or 231C. In-depth reading and linguistic analysis of texts related to Philhellene School of 6th to 8th century and related works up to 19th century. May be taken independently for credit. Letter grading.

**232B. Advanced Classical Armenian (4)** Lecture, three hours. Requisite: course 231A or 231B or 231C. In-depth reading and linguistic analysis of texts related to Philhellene School of 6th to 8th century and related works up to 19th century. May be taken independently for credit. Letter grading.

**232C. Advanced Classical Armenian (4)** Lecture, three hours. Requisite: course 231A or 231B or 231C. In-depth reading and linguistic analysis of texts related to Philhellene School of 6th to 8th century and related works up to 19th century. May be taken independently for credit. Letter grading.

**250A. Seminar: Armenian Literature (4)** Seminar, three hours. Selected topics from various periods of Armenian literature. May be repeated for credit. S/U or letter grading.

**250B. Seminar: Armenian Literature (4)** Seminar, three hours. Selected topics from various periods of Armenian literature. May be repeated for credit. S/U or letter grading.

**C251. Armenian Literature and Canon Formation (4)** Lecture, four hours. Discussion of fundamental themes and genres around which Armenian literary tradition evolved and modalities by which this has been transformed in course of last two centuries as result of exposure to European thought and expressive forms. Concurrently scheduled with course C151. S/U or letter grading.

**C252. Modern Armenian Drama as Vehicle for Social Critique (4)** Lecture, four hours. Readings of selected plays from 1668 to 1992 from three main genres of tragedy, comedy, and serious drama and featuring works by most significant Armenian playwrights, with focus on their role as commentators on contemporary mores and as agents for social reform. Concurrently scheduled with course C152. Letter grading.

**C253. Art, Politics, and Nationalism in Modern Armenian Literature (4)** Lecture, four hours. Examination of role of literature in modern Armenian society in service to cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Concurrently scheduled with course C153. S/U or letter grading.

**C255. Issues in Armenian American Literature and Culture (4)** Lecture, four hours. Preparation: reading knowledge of modern Eastern and Western Armenian. Theoretically informed exploration of some of most salient questions related to Armenian American community as reflected in its literature and other cultural artifacts in interaction with its pluralistic American ambience. Concurrently scheduled with course C155. Letter grading.

**C266. Armenian Film and Culture (5)** Lecture, six hours. Requisite: course 1C or 4C. Overview of development of Armenian cinematography from first talkie to present, with focus on work of most seminal directors from Armenian Republic, as well as various voices from worldwide diaspora. Concurrently scheduled with course C166. S/U or letter grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Hebrew Courses

### Lower Division

**1A. Elementary Hebrew (5)** Lecture, four hours; laboratory, one hour. Enforced preparation: Hebrew placement test. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to native speakers. Introduction to modern Hebrew, including listening, speaking, reading, and writing. P/NP or letter grading.

**1B. Elementary Hebrew (5)** Lecture, four hours; laboratory, one hour. Enforced requisite: course 1A or Hebrew placement test. Not open to native speakers. Introduction to modern Hebrew, including listening, speaking, reading, and writing. P/NP or letter grading.

**1C. Elementary Hebrew (5)** Lecture, four hours; laboratory, one hour. Enforced requisite: course 1B or Hebrew placement test. Not open to native speakers. Introduction to modern Hebrew, including listening, speaking, reading, and writing. P/NP or letter grading.

**8. Elementary Hebrew: Intensive (12)** Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to modern Hebrew, including listening, speaking, reading, and writing. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102A. Intermediate Hebrew (5)** Lecture, five hours. Enforced requisite: course 1C or Hebrew placement test. Course 102A is enforced requisite to 102B, which is enforced requisite to 102C. Not open to native speakers. Amplification of grammar; reading of texts from modern literature. P/NP or letter grading.

**102B. Intermediate Hebrew (5)** Lecture, five hours. Enforced requisite: course 102A or Hebrew placement test. Not open to native speakers. Amplification of grammar; reading of texts from modern literature. P/NP or letter grading.

**102C. Intermediate Hebrew (5)** Lecture, five hours. Enforced requisite: course 102B or Hebrew placement test. Not open to native speakers. Amplification of grammar; reading of texts from modern literature. P/NP or letter grading.

**103A. Advanced Hebrew (4)** Lecture, five hours. Enforced requisites: courses 102A, 102B, and 102C, or Hebrew placement test. Students with prior knowledge of Hebrew who did not take courses 102A, 102B, and 102C should contact instructor to determine appropriate enrollment level. Not open to native speakers. Designed for students with intermediate speaking fluency and reading abilities in Hebrew. Introduction to modern Hebrew literary texts. P/NP or letter grading.

**103B. Advanced Hebrew (4)** Lecture, five hours. Enforced requisites: courses 102A, 102B, and 102C, or Hebrew placement test. Students with prior knowledge of Hebrew who did not take courses 102A, 102B, and 102C should contact instructor to determine appropriate enrollment level. Not open to native speakers. Designed for students with intermediate speaking fluency and reading abilities in Hebrew. Introduction to modern Hebrew literary texts. P/NP or letter grading.

**103C. Advanced Hebrew (4)** Lecture, five hours. Enforced requisites: courses 102A, 102B, and 102C, or Hebrew placement test. Students with prior knowledge of Hebrew who did not take courses 102A, 102B, and 102C should contact instructor to determine appropriate enrollment level. Not open to native speakers. Designed for students with intermediate speaking fluency and reading abilities in Hebrew. Introduction to modern Hebrew literary texts. P/NP or letter grading.

**110A. Introduction to Biblical Hebrew: Phonology, Morphology, and Structure of Biblical Hebrew (4)** Lecture, three hours. Phonology, morphology, and structure of biblical Hebrew. P/NP or letter grading.

**110B. Introduction to Biblical Hebrew: Readings of Biblical Prose Texts (4)** Lecture, three hours. Requisite: course 110A. Continuation of course 110A. Readings of biblical prose texts. P/NP or letter grading.

**110C. Readings in Biblical Hebrew (4)** Lecture, three hours. Requisites: courses 110A, 110B. Continuation of course 110B. Reading of prose texts from Hebrew Bible, particularly from Former Prophets (Joshua-Kings). Introduction to certain aspects of historical grammar of biblical Hebrew. Reading and translation of variety of texts from different historical periods of Hebrew language, including texts from Archaic, Standard, and Late periods. Increased understanding of Hebrew verbal system, including different verbal patterns, their morphology, and syntactic function in biblical Hebrew prose. P/NP or letter grading.

**111A. Israeli Society through Hebrew Song and Video (4)** Lecture, three hours; laboratory, one hour. Requisite: course 1C. Use of contemporary Israeli song and video to explore Israeli collective imagination and various Israeli sociocultural issues to familiarize students with different aspects of Israeli daily life and popular culture, while teaching them multiple speech acts in both formal and informal contexts and enriching their Hebrew vocabulary and its retention. P/NP or letter grading.

**111B. Conversational Hebrew (3)** Lecture, two hours; laboratory, one hour. Requisite: course 111A. Vocabulary used in daily life, different speech acts in both formal and informal contexts, and various Israeli sociocultural issues using different kinds of media, such as video, Internet, and newspapers. P/NP or letter grading.

**111C. Conversational Hebrew (3)** Lecture, two hours; laboratory, one hour. Requisite: course 111B. Vocabulary used in daily life, different speech acts in both formal and informal contexts, and various Israeli sociocultural issues using different kinds of media, such as video, Internet, and newspapers. P/NP or letter grading.

**112. Readings in Modern Scholarly Hebrew (2)** Seminar, two hours. Requisite: course 102C. In-depth reading and discussion of selected scholarly articles in modern Hebrew for various disciplines: Bible study, Jewish history and folklore, sociology, and literary criticism. Development of student proficiency in vocabulary, terminology, and ideas in these fields while enhancing comprehension of complex syntactical structures in Hebrew. May be repeated for credit. P/NP or letter grading.

**113. Contemporary Israeli Short Stories/Novellas and Films in English (5)** (Same as Jewish Studies M113.) Lecture, three hours; laboratory, two hours. Exploration of Israeli short stories/novellas and films (translated into English) written since mid-1980s that use, each to varying degree, postmodernist techniques to undermine predominance of modernist-Zionist narrative. Recycling and reexamination of Israeli condition and Zionist condition and skepticism about legitimacy of meta-narratives to redefine blurred outline of Israeli identity and subvert its underpinning formative myths. They simultaneously display loss of faith in representative dimension of language, including ability of texts to penetrate to its hidden meaning. Using periphery discourses, these texts strive to change modernist aesthetic and power paradigm. P/NP or letter grading.

**120. Biblical Texts (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Translation and analysis of biblical texts, with attention to aspects of grammar, style, and interpretation.

**125. Hebrew Bible with Medieval Commentaries (4)** Lecture, three hours. Requisite: course 103C. Hebrew Bible with the commentaries of Rashi, Ibn Ezra, and/or Nahmanides. May be repeated for maximum of 16 units. Letter grading.

**130. Rabbinic Texts (4)** Lecture, three hours. Requisites: courses 103A, 103B, 103C. Readings in Mishnah, Talmud, and/or Midrash. May be repeated for credit.

**135. Medieval Hebrew Texts (4)** Lecture, three hours. Requisites: courses 103A, 103B, 103C. Readings in medieval Hebrew prose and poetry. May be repeated for maximum of 16 units. P/NP or letter grading.

**C140. Modern Hebrew Poetry and Prose (4)** Lecture, three hours. Requisites: courses 103A, 103B, and 103C, or equivalent knowledge of Hebrew. Study of major Hebrew writers of past 100 years. May be repeated for credit. Concurrently scheduled with course C240. Letter grading.

**170. Dead Sea Scrolls (4)** Lecture, three hours. Requisite: course 110C. Readings in Hebrew scrolls from Dead Sea, with focus on grammar, paleography, and biblical interpretation in Dead Sea Scrolls. May be repeated for credit. P/NP or letter grading.

**180A. Survey of Hebrew Grammar (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Descriptive and comparative study of Hebrew grammar: phonology and morphology. Topics include development of Hebrew language from biblical times to present day, its relation to Arabic and other Semitic languages, methods of language expansion in Israeli Hebrew, traditional pronunciation of Hebrew by various Jewish communities, Hebrew contribution to other Jewish languages (Yiddish, Ladino, Judeo-Arabic). P/NP or letter grading.

**180B. Survey of Hebrew Grammar (4)** Lecture, three hours. Requisites: courses 102A, 102B, 102C. Descriptive and comparative study of Hebrew grammar: phonology and morphology. Topics include development of Hebrew language from biblical times to present day, its relation to Arabic and other Semitic languages, methods of language expansion in Israeli Hebrew, traditional pronunciation of Hebrew by various Jewish communities, Hebrew contribution to other Jewish languages (Yiddish, Ladino, Judeo-Arabic). P/NP or letter grading.

**188FL. Special Studies: Readings in Hebrew (2)** Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in an affiliated main course. Primary readings and advanced training in Hebrew. Additional work in Hebrew to enrich and augment work assigned in main course, including reading, writing, and other exercises in Hebrew. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Hebrew (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Hebrew (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**210. History of Hebrew Language (4)** Seminar, three hours. Development of Hebrew language in its classical period from archaic poetry through rabbinic Hebrew. Special attention to sociology of Hebrew: literacy, language ideology, register, dialect. S/U or letter grading.

**220. Studies in Hebrew Biblical Literature (4)** Seminar, three hours. Critical study of Hebrew texts in relation to major versions; philological, comparative, literary, and historical study of various biblical books. May be repeated for credit. S/U or letter grading.

**225. Studies in Dead Sea Scrolls. (2, 4)** Seminar, three hours. Requisite: course 120. Critical study of Dead Sea Scrolls, with attention to history of biblical interpretation and role of Dead Sea Scrolls in formative Judaism. Reading in original manuscripts from Dead Sea Scrolls. May be repeated for credit. S/U or letter grading.

**230. Rabbinic Hebrew Literature (4)** Seminar, three hours. May be repeated for credit. S/U or letter grading.

**231. Texts in Judeo-Arabic (4)** (Same as Arabic M231.) Lecture, three hours. Requisites: course 102C, Arabic 102C. Reading of Judeo-Arabic texts by Maimonides (medieval religion, medicine, philosophy) and more recent texts in Judeo-Arabic dialects of Iraq and Egypt, with discussion of grammar and deviations from norms of classical Arabic. S/U or letter grading.

**235. Hebrew Literature of Second Temple Period (4)** Seminar, three hours. Designed for students who have basic language skills and capacities necessary for reading Biblical Hebrew or Rabbinic Hebrew. Reading, analysis, and interpretation of Hebrew literature composed during Second Temple period. Relevant sources include Chronicles, Ezra-Nehemiah, Ecclesiastes, Ben Sira, Daniel, Dead Sea Scrolls, and other documents from Judean desert, and various apocrypha and pseudepigrapha. Special attention to historical development of Hebrew language and literature in relation to both earlier biblical sources, styles, grammar, and syntax and to subsequent Rabbinic writings. Course builds following skills: reading unpointed texts, mastering distinctive elements of vocabulary, idiom, and syntax of Second Temple Hebrew, and analyzing relationships between biblical and postbiblical sources. May be repeated for credit. S/U or letter grading.

**C240. Modern Hebrew Poetry and Prose (4)** Lecture, three hours. Requisites: courses 103A, 103B, and 103C, or equivalent knowledge of Hebrew. Study of major Hebrew writers of past 100 years. May be repeated for credit. Concurrently scheduled with course C140. Letter grading.

**241. Studies in Modern Hebrew Prose Fiction (4)** Studies in specific problems and trends in Hebrew prose fiction of the last two centuries. May be repeated for credit.

**242. Studies in Modern Hebrew Poetry (4)** Studies in specific problems and trends in Hebrew poetry of the last two centuries.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Iranian Courses

### Lower Division

**1A. Elementary Persian (5)** Lecture, six hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Persian. P/NP or letter grading.

**1B. Elementary Persian (5)** Lecture, six hours. Enforced requisite: course 1A. Not open to students with prior knowledge of Persian. P/NP or letter grading.

**1C. Elementary Persian (5)** Lecture, six hours. Enforced requisite: course 1B. Not open to students with prior knowledge of Persian. P/NP or letter grading.

**8. Elementary Persian: Intensive. (15)** Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Persian to qualify for more advanced courses. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to fundamentals of Persian, including pronunciation, grammar, and Persian script, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20A. Accelerated Elementary Persian (6)** Lecture, four hours; discussion two hours; laboratory, 30 minutes per day. Preparation: some knowledge of spoken Persian. Course 20A is enforced requisite to 20B, which is enforced requisite to 20C. Intensive and thorough study of fundamental structure of Persian grammar; reading from a wide range of classical and modern poetry and prose compositions. P/NP or letter grading.

**20B. Accelerated Elementary Persian (6)** Lecture, four hours; discussion two hours; laboratory, 30 minutes per day. Preparation: some knowledge of spoken Persian. Enforced requisite: course 20A. Intensive and thorough study of fundamental structure of Persian grammar; reading from a wide range of classical and modern poetry and prose compositions. P/NP or letter grading.

**20C. Accelerated Elementary Persian (6)** Lecture, four hours; discussion two hours; laboratory, 30 minutes per day. Preparation: some knowledge of spoken Persian. Enforced requisite: course 20B. Intensive and thorough study of fundamental structure of Persian grammar; reading from a wide range of classical and modern poetry and prose compositions. P/NP or letter grading.

**55. Gender and Sexuality in Arts and Literatures of Iran and Middle East (5)** Lecture, three hours; discussion, one hour. Multifaceted introduction to Persian poetry, recognized as jewel of Persian culture, and to pictorial, architectural, performative, cinematographic, and photographic dimensions of artistic milieu spanning between Balkans, India, and Central Asia from 10th century CE to present. With consideration of centrality of discourses on identity, de-

sire, and spirituality to core of Persian aesthetics, study of broad variety of socioanthropological, ethical, and historiographical issues stemming from both mainstream topics characterizing extensive field of Iranian studies and most controversial conversations on nature of sexuality, ethnicity, and religion. P/NP or letter grading.

**60. Achaemenid Civilization and Empire of Alexander (5)** (Same as Ancient Near East M60 and History M60.) Lecture, three hours; discussion, one hour. Survey of period from circa 600 to 300 BCE, rise and fall of Achaemenid Persia, first world empire of antiquity, which was ended by Alexander the Great, whose campaigns were as transformative as they were violent. Alexander connected ancient Mediterranean and Near East as never before, ushering in new era and forever changing cultural landscape of ancient world. Focus on themes of ancient kingship and political ideology; comparative study of empires; administration and institutions; and religious and ethnic diversity in large, heterogeneous states. Emphasis on diversity critical to understanding political nuances of ancient world. Students gain broad knowledge of Achaemenid and Macedonian empires, facility with ancient primary sources, and development of analytical skills central to discipline of history that allow conceptualizing issues of diversity and othering in ancient world. P/NP or letter grading.

**60W. Achaemenid Civilization and Empire of Alexander (5)** (Same as Ancient Near East M60W and History M60W.) Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course M60. Survey of period from circa 600 to 300 BCE, rise and fall of Achaemenid Persia, first world empire of antiquity, which was ended by Alexander the Great, whose campaigns were as transformative as they were violent. Alexander connected ancient Mediterranean and Near East as never before, ushering in new era and forever changing cultural landscape of ancient world. Focus on themes of ancient kingship and political ideology; comparative study of empires; administration and institutions; and religious and ethnic diversity in large, heterogeneous states. Emphasis on diversity critical to understanding political nuances of ancient world. Students gain broad knowledge of Achaemenid and Macedonian empires, facility with ancient primary sources, and development of analytical skills central to discipline of history that allow conceptualizing issues of diversity and othering in ancient world. Satisfies Writing II requirement. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102A. Intermediate Persian (5)** Lecture, six hours. Requisite: course 1C or 20C. Course 102A is requisite to 102B, which is requisite to 102C. P/NP or letter grading.

**102B. Intermediate Persian (5)** Lecture, six hours. Requisite: course 102A. P/NP or letter grading.

**102C. Intermediate Persian (5)** Lecture, six hours. Requisite: course 102B. P/NP or letter grading.

**103A. Advanced Persian: Introduction to Classical Persian Poetry (4)** Lecture, three hours. Requisite: course 102C. Students who do exceptionally well in course 20C may be permitted to enroll with consent of instructor. May be taken independently for credit. P/NP or letter grading.

**103B. Advanced Persian: Introduction to Classical Persian Prose (4)** Lecture, three hours. Requisite: course 102C. Students who do exceptionally well in course 20C may be permitted to enroll with consent of instructor. May be taken independently for credit. P/NP or letter grading.

**103C. Advanced Persian: Introduction to Contemporary Persian Poetry and Prose (4)** Lecture, three hours. Requisite: course 102C. Students who do exceptionally well in course 20C may be permitted to enroll with consent of instructor. May be taken independently for credit. P/NP or letter grading.

**104. Philosophical Texts (4)** Lecture, three hours. Readings in English. Introduction to wide selection of philosophical texts in translation. Identification of major philosophical themes in ontology, epistemology, psychology, and cosmology through texts, with study in detail. P/NP or letter grading.

**105A. Bahá'í Faith in Iran: Historical and Sociological Survey (4)** (Same as Religion M105A.) Lecture, three hours. Readings in English. Rise and development of Bábí and Bahá'í religions in context of 19th century Iran. Focus on personalities of Báb, Bahá'u'lláh, and 'Abdu'l-Bahá. May be taken independently for credit. P/NP or letter grading.

**105B. Bahá'í Faith in Iran: Survey of Bahá'í Scriptures and Thought (4)** (Same as Religion M105B.) Lecture, three hours. Readings in English. Analysis of major writings by Báb, Bahá'u'lláh, and 'Abdu'l-Bahá. Emphasis on mystical and social principles. May be taken independently for credit. P/NP or letter grading.

**105C. Bahá'í Faith in Iran: 20th Century-Iran and the Bahá'ís (4)** (Same as Religion M105C.) Lecture, three hours. Readings in English. Focus on history of 20th-century Iran beginning with constitutional revolution, development and persecution of Bahá'í community, and latter's relation to reform movements in Iran. May be taken independently for credit. P/NP or letter grading.

**110A. Iranian Civilization: History of Achaemenid Empire (4)** (Same as Ancient Near East M110A and History M110A.) Lecture, three hours; discussion, one hour (when scheduled). From end of Elam and rise of Medes to Macedonian conquest of Achaemenid Persia. Emphasis on political history, state structure, empire's religions, and Greco-Persian interactions. Further accents on Cyrus' empire and Darius' world order, age of Persian Wars, Cyrus the Younger, Achaemenid Egypt, Alexander's conquest. P/NP or letter grading.

**110B. Iranian Civilization: History of Arsacid (Parthian) Empire (4)** (Same as Ancient Near East M110B and History M110B.) Lecture, three hours; discussion, one hour (when scheduled). From Hellenistic rule in Persia to Sasanian conquest. Emphasis on political history, state structure, empire's religions, interactions with Hellenistic and Roman worlds. Further accent on Parthian conquest of Iran and Mesopotamia, Seleucid demise and Arsacid hegemony in East, Arsacid-Roman wars, rise of Sasanians. P/NP or letter grading.

**110C. Iranian Civilization: History of Early Sasanian Empire—From Ardashir I to Rise of Peroz (circa 224-459 CE) (4)** (Same as Ancient Near East M110C and History M110C.) Lecture, three hours; discussion, one hour (when scheduled). From fall of Arsacids to Muslim conquest of Iran. Emphasis on political and economic history, evolution of state structure, empire's religious landscape (Mazdism, Manicheism, Exilarchate, Church of Persia, Mazdakism), Persian and Roman/Byzantine interactions, Persia and East. Further accent on Persian-Roman conflicts and cooperation, Persia and Huns. P/NP or letter grading.

**115A. Elementary Azeri (4)** (Same as Turkic Languages M115A.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

**115B. Elementary Azeri (4)** (Same as Turkic Languages M115B.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

**115C. Elementary Azeri (4)** (Same as Turkic Languages M115C.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

**120. Comparative Study of Six Major Persian Poets (4)** Lecture, two hours; discussion, one hour. Preparation: knowledge of Persian. Lectures in Persian, readings in English and Persian. Comparative study of six major Persian poets from 10th to 14th century who shaped sense of Persian identity and delineated chief distinguishing characteristics of Persian thought and culture. May be repeated for credit with consent of instructor. P/NP or letter grading.

**130. Intellectual History of Jews of Persia (4)** Lecture, three hours. Readings in English. Introduction to intellectual history of Jews in Persia by highlighting select areas of Judeo-Persian studies and focusing on various authors and their work. P/NP or letter grading.

**131. Introduction to Judeo-Persian: Literature and Culture (4)** Lecture, three hours. Preparation: knowledge of Persian equivalent to course 102C. Introduction to history of Judeo-Persian literature and culture to prepare students to read Judeo-Persian texts. P/NP or letter grading.

**132. Intermediate Judeo-Persian Literature and Culture (4)** Lecture, three hours. Enforced requisites: courses 102C, 131. Literary study of Judeo-Persian literature, as segment of Iranian classical literature. Judeo-Persian literary genres, in forms of prose and verse, compared with their parallel genres in context of Iranian literature. Textual study of Judeo-Persian manuscripts, both print and cursive, and their variations depending on time period or locality. P/NP or letter grading.

**140. Persian Belles Lettres (Adabiyat) (4)** Lecture, three hours. Requisite: course 102C. Study of major Persian poets and prose writers: prose—Sohrwardi, Hamadani, Nasafi, Irâqi, and others; poetry—Hâfez, Sa'di, Rûmi, Bahâr, Dehkhoda, and others. May be repeated for credit with consent of instructor. P/NP or letter grading.

**141. Persian Analytical Prose (4)** Lecture, three hours. Requisite: course 102C. Study of selected analytical and expository prose texts, with emphasis on philosophy, sciences, literary criticism, and history. May be repeated for credit with consent of instructor. P/NP or letter grading.

**142. Persian Popular Ethics (4)** Lecture, three hours. Requisite: course 102C. Study of major Persian works on popular ethics that have helped shape normative social, cultural, and political values in Iranian civilization. May be repeated for credit with consent of instructor. P/NP or letter grading.

**150A. Survey of Persian Literature in English (4)** Lecture, three hours. Knowledge of Persian not required. May be taken independently for credit.

**150B. Survey of Persian Literature in English (4)** Lecture, three hours. Knowledge of Persian not required. May be taken independently for credit.

**161A. Elementary Middle Iranian (4)** Lecture, three hours. Preparation: knowledge of Persian desirable. Course 161A is requisite to 161B, which is requisite to 161C. Studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. P/NP or letter grading.

**161B. Elementary Middle Iranian (4)** Lecture, three hours. Requisite: course 161A. Studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. P/NP or letter grading.

**161C. Elementary Middle Iranian (4)** Lecture, three hours. Requisite: course 161B. Studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. P/NP or letter grading.

**CM163. Archaeology of Iran (4)** (Same as Ancient Near East CM163.) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Concurrently scheduled with course CM259. P/NP or letter grading.

**164. Ancient Cities of Iran: Archaeological Survey of Historic Cities and Sites of Iran from 4000 BC to 1900 AD (4)** Lecture, four hours. Introduction to archaeological and historical monuments and sites of Iran from earliest periods to early 20th century. Examination of emergence of early Iranian villages, formation of cities and their development and expansion throughout late Sasanian and early Islamic periods to preindustrial era in early years of past century. Study of selection of ancient Iranian sites and cities, from fifth millennium BC to Qajar period, based on relevant archaeological, historical, and geographical sources. Study of archaeology and historical geography of each site or city with aerial views, which reveal rich array of architecture and town planning—from ordinary settlements and vernacular constructions to worldly-known royal and religious monuments. P/NP or letter grading.

**169. Civilization of Pre-Islamic Iran (4)** Survey of Iranian culture from the beginning through Sasanian period.

**170. Religion in Ancient Iran (4)** History of religion in Iran from the beginning to the Mohammedan conquest; Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism.

**178. Introduction to History and Culture of Iranian Jews (4)** (Same as History M178 and Jewish Studies M178.) Lecture, three hours. Introduction to political, intellectual, cultural, and socioeconomic status of Iranian Jews. Exploration of history of Iranian Jews from ancient period throughout history, with focus on post-Middle Ages to present time. Topics, studied from perspective of Iranian cultural and intellectual history, include identity and status, religious tolerance versus forced conversion, Iranian Jewish emancipation, and dynamic symbiosis between Iranian Jews and other Iranians. P/NP or letter grading.

**187. Variable Topics in Iranian Studies (4)** Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**188FL. Special Studies: Readings in Iranian (2)** Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in affiliated main course. Primary readings and advanced training in Iranian. Additional work in Iranian to enrich and augment work assigned in main course, including reading, writing, and other exercises in Iranian. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Iranian. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Iranian. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M210. Topics in Ancient Iranian History (4)** (Same as Ancient Near East M208 and History M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

**220A. Classical Persian Texts (4)** Lecture, three hours. Requisites: courses 103A, 103B, 103C. Study of selected classical Persian texts. May be taken independently for credit.

**220B. Classical Persian Texts (4)** Lecture, three hours. Requisites: courses 103A, 103B, 103C. Study of selected classical Persian texts. May be taken independently for credit.

**221. Rumi, Mystic Poet of Islam (4)** Seminar, three hours. Requisite: course 220A or 220B. Study of life and works of Rumi in context of interaction of Sufism and poetic creativity. May be repeated twice for credit.

**222A. Vedic (4)** (Same as Indo-European Studies M222A and South Asian M222A.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. May not be repeated for credit. S/U or letter grading.

**222B. Vedic (4)** (Same as Indo-European Studies M222B and South Asian M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. May be repeated for credit. S/U or letter grading.

**230A. Old Iranian (4)** (Same as Indo-European Studies M230A.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. May not be repeated for credit. S/U or letter grading.

**230B. Old Iranian (4)** (Same as Indo-European Studies M230B.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. May be repeated for credit. S/U or letter grading.

**231A. Advanced Middle Iranian (4)** Lecture, three hours. Requisite: course 161C. Course 231A is requisite to 231B, which is requisite to 231C. Further studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. S/U or letter grading.

**231B. Advanced Middle Iranian (4)** Lecture, three hours. Requisite: course 231A. Further studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. S/U or letter grading.

**231C. Advanced Middle Iranian (4)** Lecture, three hours. Requisite: course 231B. Further studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. S/U or letter grading.

**250. Seminar: Classical Persian Literature (4)** Seminar, three hours. Requisites: courses 103A, 103B, 103C, 199. May be repeated twice for credit.

**251. Seminar: Contemporary Persian Literature (4)** Seminar, three hours. Requisite: course 140. Studies in specific problems and trends in Persian poetry and prose in the 20th century. May be repeated twice for credit.

**CM259. Archaeology of Iran (4)** (Same as Ancient Near East CM259.) Lecture, three hours. Designed to introduce students to Iranian archaeology from pre-historic through Achaemenid times. Concurrently scheduled with course CM163. S/U or letter grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Islamic Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Islam (5)** (Same as Religion M20.) Lecture, three hours; discussion, one hour. Genesis of Islam, its doctrines, and practices, with readings from Qur'an and Hadith; schools of law and theology; piety and Sufism; reform and modernism. P/NP or letter grading.

**27A. Global Islam (6)** (Same as Clusters M27A.) Lecture, three hours; discussion, two hours. Course M27A is enforced requisite to M27B, which is enforced requisite to M27CW. Introduction to Islam, immensely diverse global tradition which is second largest religion. Study of Islam and Muslims within framework of study of global religious traditions and emphasis on profound diversity of localized belief and practice found across world. Examination of Islam's evolution across 15 centuries, from late antiquity—when it emerged as localized religion in Central Arabia—to modern era where it is practice from U.S. to Indonesia. Concentration on broad analytical categories in study of religion such as text, culture, history, and prophecy. Students transition to more complex analyses through chronological overview of Islamic history. Study also of case studies of Muslim global networks in arenas such as art, music, literature, and political thought. P/NP or letter grading.

**27B. Global Islam (6)** (Same as Clusters M27B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M27A. Introduction to Islam, immensely diverse global tradition which is second largest religion. Study of Islam and Muslims within framework of study of global religious traditions and emphasis on profound diversity of localized belief and practice found across world. Examination of Islam's evolution across 15 centuries, from late antiquity—when it emerged as localized religion in Central Arabia—to modern era where it is practice from U.S. to Indonesia. Concentration on broad analytical categories in study of religion such as text, culture, history, and prophecy. Students transition to more complex analyses through chronological overview of Islamic history. Study also of case studies of Muslim global networks in arenas such as art, music, literature, and political thought. P/NP or letter grading.

**27CW. Global Islam: Special Topics (6)** (Same as Clusters M27CW.) Seminar, three hours. Enforced requisite: course M27B. Introduction to Islam, immensely diverse global tradition which is second largest religion. Study of Islam and Muslims within framework of study of global religious traditions and emphasis on profound diversity of localized belief and practice found across world. Examination of Islam's evolution across 15 centuries, from late antiquity—when it emerged as localized religion in Central Arabia—to modern era where it is practice from U.S. to Indonesia. Concentration on broad analytical categories in study of religion such as text, culture, history, and prophecy. Students transition to more complex analyses through chronological overview of Islamic history. Study also of case studies of Muslim global networks in arenas such as art, music, literature, and political thought. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.



**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**CM107. Islam in West (5)** (Formerly numbered M107.) (Same as Arabic M107 and Religion M107.) Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. Concurrently scheduled with course C207. P/NP or letter grading.

**111. Introduction to Islamic Archaeology (4)** (Same as Art History M119C and Middle Eastern Studies M111.) Lecture, three hours. From earliest monuments of Islam in Arabia and Jerusalem to humble remains of small Egyptian port, broad focus on archaeological and standing remains in central Islamic lands (primarily Syria, Egypt, and Iraq), Turkey, Iran, North Africa, and Spain. Profound cultural transformations occurred from birth of Islam in 7th century to early Ottoman period in 16th and 17th centuries, which are traceable in material records. Assessment of effectiveness of tools afforded by historical archaeology to aid understanding of past societies. P/NP or letter grading.

**112. Archaeology and Art of Christian and Islamic Egypt (4)** (Same as Archaeology M112, Art History M119D, and Middle Eastern Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century CE. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

**CM115. Islam and Other Religions (5)** (Formerly numbered M115.) (Same as Religion M115.) Lecture, three hours; discussion, one hour. Students gain familiarity with historical cases and modes of interaction between Muslims and non-Muslims in plural societies. Consideration of axis questions such as how does Qur'an reflect religious plurality; how does it situate Islam vis-à-vis its alternatives; what encounters did rapid expansion of Islam bring about in diverse societies; how did Islam and other religions change through debate, war, and exchange of ideas; what roles has political power played in conditioning interreligious interaction; how have conversion and hybridity affected what it means to be Muslim; what is different about interreligious interactions in secular states and societies; and how is past invoked to justify opinions and policies today. Investigation of these questions by conducting microstudies: close readings of sources through theoretical lens. Concurrently scheduled with course C215. P/NP or letter grading.

**130. Shi'a in Islamic History (4)** Seminar, three hours; discussion, one hour. Rise and development of Shi'a Islam, its doctrines, and practices; major branches: Twelvers, Ismailis, Zaydis; their contribution to Islamic thought and civilization; modern trends of reinterpretation and reform. Letter grading.

**C151. Islamic Thought (4)** (Formerly numbered 151.) Lecture, three hours. Recommended requisite: introductory course on Islam or instructor consent. Introduction to major fields of inquiry and debate in Islamic studies (e.g., exegesis, Hadith, law, theology, Sufism). Focus on selected topics of debate such as nature of God, jihad, hijab, or pilgrimage. Concurrently scheduled with course C251. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Islamic Studies (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Islamic Studies (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Introduction to Islamic Studies (4)** Seminar, three hours. Introduction to various disciplines and methods employed in study of Islamic histories, cultures, and societies, with special emphasis on methodologies and current theories and how they may be used and combined by Islamic studies students. Content varies each year. Letter grading.

**201. Arabo-Islamic Sciences (4)** Seminar, three hours. Preparation: good reading knowledge of Arabic, English, and one other Western language. Comprehensive coverage of Arabo-Islamic sciences that formed matrix of Islamic education. Survey of most recent developments in following disciplines: Arabic language and literature, Qur'anic sciences, traditions, jurisprudence, theology, and Sufism. Letter grading.

**C207. Islam in West (5)** Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. Concurrently scheduled with course CM107. S/U or letter grading.

**C215. Islam and Other Religions (5)** Lecture, three hours; discussion, one hour. Students gain familiarity with historical cases and modes of interaction between Muslims and non-Muslims in plural societies. Consideration of axis questions such as how does Qur'an reflect religious plurality; how does it situate Islam vis-à-vis its alternatives; what encounters did rapid expansion of Islam bring about in diverse societies; how did Islam and other religions change through debate, war, and exchange of ideas; what roles has political power played in conditioning interreligious interaction; how have conversion and hybridity affected what it means to be Muslim; what is different about interreligious interactions in secular states and societies; and how is past invoked to justify opinions and policies today. Investigation of these questions by conducting microstudies: close readings of sources through theoretical lens. Concurrently scheduled with course CM115. S/U or letter grading.

**C251. Islamic Thought (4)** Lecture, three hours. Recommended requisite: introductory course on Islam or instructor consent. Introduction to major fields of inquiry and debate in Islamic studies (e.g., exegesis, Hadith, law, theology, Sufism). Focus on selected topics of debate such as nature of God, jihad, hijab, or pilgrimage. Concurrently scheduled with course C151. Letter grading.

**291A. Variable Topics in Islamic Studies (4)** Seminar, three hours. Selected topics on Islam. May be repeated for credit with topic change. S/U or letter grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**598. MA Thesis Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U or letter grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

# Jewish Studies Courses

## Lower Division

**M10. Introduction to Judaism (5)** (Same as Religion M10.) Lecture, three hours; discussion, one hour. Judaism's basic beliefs, institutions, and practices. Topics include development of biblical and rabbinic Judaism; concepts of god, sin, repentance, prayer, and the messiah; history of Talmud and synagogue; evolution of folk beliefs and year-cycle and life-cycle practices. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**67. Popular Jewish and Israeli Music (5)** (Same as Musicology M67.) Lecture, four hours; discussion, one hour. Music of Jews is diverse. With history of several thousand years and series of developments in modernity, music in Jewish life covers variety of styles found in many contexts. Exploration of music of Jews within last 100 years, with focus on popular music of Jews in America and Israel. Examination of music in Israel, with focus on songs of land of Israel, Israeli rock, and Muzika Mizrachit (Middle Eastern popular music). P/NP or letter grading.

**80. Jewish American Experience through Music (5)** (Same as Ethnomusicology M80 and Musicology M80.) Lecture, four hours; discussion, one hour. In synagogue and on stage, and from LP recordings to YouTube, Jews in America have varied musical experiences. Music of synagogue, celebrations at home, in community, and theater are all interesting developments of Jewish music. New Opportunities in entertainment industry brought new possibilities for Jews in popular music, rock, and film scores. Exploration of various examples of Jews responding and adapting to their American context and becoming American through music. Exploration of different music genres and contexts. Presentations by guest composers and performers. Letter grading.

**82. Music and Holocaust: Individual Experience (5)** (Same as Musicology M82.) Lecture, three hours; discussion, one hour. Roles of music during Holocaust are as varied as people who experienced it. Music was composed and performed by prisoners in almost every concentration camp; music was means for some individuals to gain favorable treatment, while others weaponized it. Traces development of European musical culture under Nazi regime (1933-45), focusing on how individuals interacted with music throughout Holocaust. Study of some of newest developments in Holocaust music research, including role American and European non-governmental organizations played in creation of artistic hubs in campus of southern France. Exploration also of cultural representations of Holocaust, and role of music in society's collective memory. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**M113. Contemporary Israeli Short Stories/Novellas and Films in English (5)** (Same as Hebrew M113.) Lecture, three hours; laboratory, two hours. Exploration of Israeli short stories/novellas and films (translated into English) written since mid-1980s that use, each to varying degree, postmodernist techniques to undermine predominance of modernist-Zionist narrative. Recycling and re-examination of Israeli condition and Zionist condition and skepticism about legitimacy of meta-narratives to redefine blurred outline of Israeli identity and subvert its underpinning formative myths. They simultaneously display loss of

faith in representative dimension of language, including ability of texts to penetrate to its hidden meaning. Using periphery discourses, these texts strive to change modernist aesthetic and power paradigm. P/NP or letter grading.

**135. Jewish Law (5)** Lecture, three hours. Introduction to Jewish law from biblical literature to modern legal systems. Comparison of Jewish legal systems to modern secular systems and discussion of ethical dimensions of legal systems. P/NP or letter grading.

**140A. American Jewish History, 1654 to 1914 (4)** Lecture, three hours. Examination of social and cultural history of American Jewish community from its inception to the present, with emphasis on integration of successive immigrants and development of institutions. P/NP or letter grading.

**140B. American Jewish History, 1914 to the Present (4)** Lecture, three hours. Examination of social and cultural history of American Jewish community from its inception to the present, with emphasis on integration of successive immigrants and development of institutions. P/NP or letter grading.

**142. Modern Israel: Politics, Society, Culture (4)** (Same as Middle Eastern Studies M142.) Lecture, three hours. Examination of evolution of Israel—its changing society, volatile domestic and foreign politics, and dynamic culture—from its foundation in 1948 to present, in context of global political and cultural change and changing Jewish world. Tension between Israel's conception of itself as Jewish state and fact that it is home to wide variety of ethnic and religious groups and to great diversity of cultures; that it was envisaged as safe haven for Jewish people but has been characterized by insecurity and ongoing war; that, founded as democracy, it contends with multiple strains on its democratic system, such as tensions between Jews and Arabs, secular and religious Jews, and disparate ethnic groups. P/NP or letter grading.

**143. Introduction to Jewish Folklore (4)** Lecture, three hours. Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis. P/NP or letter grading.

**144. Zionism: Ideology and Practice in Making of Jewish State (4)** (Same as Middle Eastern Studies M144.) Lecture, three hours; discussion, one hour. History of Zionism on backdrop of European, world, and Jewish histories from ideological origins to political, cultural, and social foundations of State of Israel. P/NP or letter grading.

**150A. Hebrew Literature in English: Literary Traditions of Ancient Israel—Bible and Apocrypha (4)** (Same as Comparative Literature M101.) Lecture, three hours. Study of literary culture of ancient Israel through examination of principal compositional strategies of Hebrew Bible and Apocrypha (read in translation). May be taken independently for credit. P/NP or letter grading.

**150B. Hebrew Literature in English: Rabbinic Judaism (4)** Lecture, three hours. Topics include emergence of rabbinic Judaism; its original literary forms; rabbinic worldview; forms of medieval rabbinic literature; modern Jewish religious movements and their attitude to rabbinic Judaism. May be taken independently for credit.

**151A. Modern Jewish Literature in English: Diaspora Literature (4)** (Same as Comparative Literature M166.) Lecture, three hours. Study of literary responses of Jews to modernity, its challenges, and threats. Readings in texts originally written in English or translated from Hebrew, Yiddish, German, Russian, French, and Italian. Analysis of formal aspects of each work. May be taken independently for credit. P/NP or letter grading.

**151B. Modern Jewish Literature in English: Israeli Literature (4)** Lecture, three hours. Study of translations from Hebrew literature written in Israel and reflecting cardinal facets of Israeli life: social issues, security problems, identity of the state, role of individual. Analysis of formal aspects of each work. May be taken independently for credit.

**155. Angels, Demons, and End of World: Magic, Mysticism, and Apocalypse in Jewish Traditions (4)** (Same as Religion M155.) Lecture, three hours. Focus on popular Jewish traditions of magic, mysticism, apocalypse, and various contours of Judaism's textual and material traditions in antiquity. Examination of texts and objects from Hebrew Bible to modern discussions of Kabbalah and end of world, concentrating on Jewish antiquity. Discussion of texts, including Hebrew Bible, Dead Sea Scrolls, extra-biblical Jewish texts, New Testament, and rabbinic and later Jewish literature. Discussion of sociohistorical context in order to decipher features and functions of magic, mysticism, and apocalypse in antiquity and modernity. P/NP or letter grading.

**162. Israel Seen through Its Literature (4)** (Same as Comparative Literature M162.) Lecture, three hours. Attempt to impart profound understanding of Israel as seen through its literature. Examination of variety of literary texts—stories, novels, and poems—and reading of them in context of their historical backgrounds. P/NP or letter grading.

**170. Dead Sea Scrolls and Early Judaism (4)** Lecture, three hours. Introduction to Dead Sea Scrolls in English translation. Survey of literature, community of Khirbet Qumran, and their place in early Judaism. P/NP or letter grading.

**175. Modern Israeli Literature Made into Films (5)** Lecture, four hours; discussion, one hour. Reading, analysis, and discussion of modern Israeli literature that was made into films, including literary works of prominent Israeli authors (S. Yizhar, A.B. Yehoshua, Amos Oz, and Yitzhak Ben Ner) that were translated to English and had filmic adaptations. Letter grading.

**177. Variable Topics in Jewish Studies (4)** Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**178. Introduction to History and Culture of Iranian Jews (4)** (Same as History M178 and Iranian M178.) Lecture, three hours. Introduction to political, intellectual, cultural, and socioeconomic status of Iranian Jews. Exploration of history of Iranian Jews from ancient period throughout history, with focus on post-Middle Ages to present time. Topics, studied from perspective of Iranian cultural and intellectual history, include identity and status, religious tolerance versus forced conversion, Iranian Jewish emancipation, and dynamic symbiosis between Iranian Jews and other Iranians. P/NP or letter grading.

**181. Topics in Jewish History (4)** (Same as History M181.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in Jewish history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

**181SL. Jewish Thought, Politics, and Ethics: From Theory to Practice (4)** (Same as History M181SL.) Lecture, three hours; fieldwork, two hours. Designed for juniors/seniors. History of Los Angeles, with special emphasis on pivotal roles Jews have played in shaping Los Angeles and role that Los Angeles has played in reshaping of Jewish identities, communities, and cultures. Exploration of themes related to regionalism in American Jewish history, comparative immigration and migration patterns, and frontiers and borderlands, while providing overview of historical methodologies and interpretation. Examination of ethical and methodological implications of writing history in digital age and learning how to read and analyze these new media works as primary and secondary historical texts. Opportunity to contribute to body of historical work related to Los Angeles Jewish history through required service work with community partners and development of digital public history projects. P/NP or letter grading.

**182A. Ancient Jewish History (4)** (Same as History M182A and Religion M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

**182B. Medieval Jewish History (4)** (Same as History M182B and Religion M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

**182C. Modern Jewish History (4)** (Same as History M182C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of early modern Jewish history beginning with enormously repercussive expulsion of Jews from Spain in 1492, followed by transformations in Jewish society and identity over five centuries in Europe and Middle East, and concluding with nationalism. P/NP or letter grading.

**184A. Jewish Civilization: Encounter with Great World Cultures (4)** (Same as History M184A and Religion M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

**184B. History of Anti-Semitism (4)** (Same as History M184B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of origins and historical development of anti-Semitism. P/NP or letter grading.

**184C. American Jewish Experience (4)** (Same as History M184C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Experience of Jews in America, both historical and contemporary. P/NP or letter grading.

**184D. History of Zionism and State of Israel (4)** (Same as History M184D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of State of Israel from 1948 to present. P/NP or letter grading.

**187. Holocaust in Literature (4)** (Same as Comparative Literature M165.) Lecture, three hours. Investigation of how Holocaust informs variety of literary and cinema works and raises wide range of aesthetic and moral questions. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities

and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Jewish Studies (4)** Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

**197. Individual Studies in Jewish Studies (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Jewish Studies (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**202. Colonization and Nationalism: Jewish Settlement in Palestine-Israel, 1882 to 1948 (4)** Seminar, three hours. Zionist settlement policy and practice, engaging perspectives concerning colonialism, socialism, and national conflict over Palestine. S/U or letter grading.

# Middle Eastern Studies Courses

## Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**50A. First Civilizations (5)** (Same as Ancient Near East M50A.) Lecture, three hours; discussion, one hour. Survey of great civilizations of ancient Near East—Egypt, Israel, and Mesopotamia—with attention to emergence of writing, monotheism, and urban societies. Letter grading.

**50B. Origins of Judaism, Christianity, and Islam (5)** (Same as Ancient Near East M50B and Religion M50.) Lecture, three hours; discussion, one hour. Examination of three major monotheisms of Western cultures—Judaism, Christianity, and Islam—historically and comparatively. Development, teachings, and ritual practices of each tradition up to and including medieval period. Composition and development of various sacred texts, highlighting key themes and ideas within different historical and literary strata of traditions, such as mechanisms of revelation, struggle for religious authority, and common theological issues such as origin of evil and status of nonbelievers. Letter grading.

**50CW. Making and Studying Modern Middle East (5)** (Same as Anthropology M67W.) Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Survey of modern Middle Eastern cultures through readings and films from Middle East and North Africa. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good

academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**M111. Introduction to Islamic Archaeology (4)** (Same as Art History M119C and Islamic Studies M111.) Lecture, three hours. From earliest monuments of Islam in Arabia and Jerusalem to humble remains of small Egyptian port, broad focus on archaeological and standing remains in central Islamic lands (primarily Syria, Egypt, and Iraq), Turkey, Iran, North Africa, and Spain. Profound cultural transformations occurred from birth of Islam in 7th century to early Ottoman period in 16th and 17th centuries, which are traceable in material records. Assessment of effectiveness of tools afforded by historical archaeology to aid understanding of past societies. P/NP or letter grading.

**112. Archaeology and Art of Christian and Islamic Egypt (4)** (Same as Archaeology M112, Art History M119D, and Islamic Studies M112.) Lecture, three hours. Culture of Egypt transformed gradually after Muslim conquest in mid-7th century CE. According to material evidence such as ceramics, textiles, architectural forms, and building techniques, it is functionally impossible to separate pre-Islamic Christian Egypt from early Islamic Egypt. Although population may have become largely Muslim by 10th century, Egypt remained Coptic in many senses even to 14th century and retains sizeable Christian minority to present. Survey of archaeological remains and standing architecture of Egypt from 6th to 19th century, charting changes and continuities in material culture and shifts in human geography and land use. P/NP or letter grading.

**C122. History, Memory, and Identity in Israel (4)** Seminar, three hours. Israeli society was born in effort to reshape images of Jewish past and has been shaken by many debates over history, recent and ancient events, and how these are represented by historical scholarship as well as in popular media and public spaces. Struggles over image of past have become central (as in many other societies) to debates about identity in present and directions, goals, and hopes for future. Exploration of ways in which struggles over past have shaped Israeli present. Examination of historiographical debates and their reflections in range of media to make some sense of ever-changing past, ways in which it shapes political, ideological, and cultural identities in present, and where meeting points are between popular discourse and work historians do. Examination of conflicting readings of past and its representation in Israeli historiography and in shaping of Israeli collective memory and identity. Concurrently scheduled with course C222. P/NP or letter grading.

**133. Bible and Qur'an (4)** (Same as Religion M133.) Lecture, three hours. Survey of Hebrew Bible/Old Testament, New Testament, and Qur'an to familiarize students with content of scriptures of Judaism, Christianity, and Islam, and sociocultural background from which these multifarious texts emerged, and to explore major themes and consider variety of approaches to scripture. Development of appreciation for role scripture plays in these religious systems and in American culture and society. P/NP or letter grading.

**142. Modern Israel: Politics, Society, Culture (4)** (Same as Jewish Studies M142.) Lecture, three hours. Examination of evolution of Israel—its changing society, volatile domestic and foreign politics, and dynamic culture—from its foundation in 1948 to present, in context of global political and cultural change and changing Jewish world. Tension between Israel's conception of itself as Jewish state and fact that it is home to wide variety of ethnic and religious groups and to great diversity of cultures; that it was envisaged as safe haven for Jewish people but has been characterized by insecurity and ongoing war; that, founded as democracy, it contends with multiple strains on its democratic system, such as tensions between Jews and Arabs, secular and religious Jews, and disparate ethnic groups. P/NP or letter grading.

**144. Zionism: Ideology and Practice in Making of Jewish State (4)** (Same as Jewish Studies M144.) Lecture, three hours; discussion, one hour. History of Zionism on backdrop of European, world, and Jewish histories from ideological origins to political, cultural, and social foundations of State of Israel. P/NP or letter grading.

**164. Archaeology of Levant (4)** (Same as Ancient Near East M164, Art History M111E, and Archeology M164.) Lecture, three hours. Survey of archaeology of Levant from late fifth millennium through arrival of Alexander the Great (circa 4500-332 BC). Examination of social, economic, political, and cultural developments through archaeological finds from geographic region bounded by Anatolia and Mesopotamia on north, Egypt to south, and Arabian Peninsula to east. Archaeological methods, theory, and practice are addressed; and geographic, environmental, climatological, and textual data are employed to establish broader context for Levantine traditions. P/NP or letter grading.

**177. Variable Topics in Middle Eastern Studies (4)** Lecture, three hours. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**178. Variable Topics (4)** (Same as Religion M178.) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion and Middle Eastern studies. May be repeated for credit with topic change. P/NP or letter grading.

**179SL. Movement in Art, Philosophy, and Daily Life (5)** (Same as Comparative Literature M179SL.) Seminar, three hours; fieldwork, three hours. Exploration of relation between humans and world. Only relevant output of brain, irrespective of what may or may not go on inside it, is control over movements. In living animals, sentience or consciousness exists to integrate often complex input and decide on course of action. Similarly, ownership and agency are inseparably associated with biological systems that control our movements. Movements play vital part in constructing psychosocial environment that permeates and surrounds us. Exploration of how humans and animals move, and how movement, as well as limitations of mobility, relate to personal and community identity. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**200. Bibliography and Method of Near Eastern Languages and Literatures (4)** Lecture, two hours. Required for MA degree. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by department. May be repeated for credit. S/U or letter grading.

**201. Study of Religion: Theory and Method (4)** Seminar, three hours. Preparation: familiarity with at least two major world religions. Designed for advanced undergraduate and graduate students. Introduction to variety of theories and methods used in academic study of religion. In attempt to demonstrate importance that historical, cultural, and social exigencies play in development of religious traditions, discussion of theories comparatively and in their historical context, with focus on presuppositions and core concepts and implications of each theory. Letter grading.

**210. Survey of Afro-Asiatic Languages (4)** Lecture, three hours. Survey of structures of number of representative languages from various major branches of Hamito-Semitic (Afro-Asiatic) language family. S/U or letter grading.

**C222. History, Memory, and Identity in Israel (4)** Seminar, three hours. Israeli society was born in effort to reshape images of Jewish past and has been shaken by many debates over history, recent and ancient events, and how these are represented by historical scholarship as well as in popular media and public spaces. Struggles over image of past have become central (as in many other societies) to debates about identity in present and directions, goals, and hopes for future. Exploration of ways in which struggles over past have shaped Israeli present. Examination of historiographical debates and their reflections in range of media to make some sense of ever-changing past, ways in which it shapes political, ideological, and cultural identities in present, and where meeting points are between popular discourse and work historians do. Examination of conflicting readings of past and its representation in Israeli historiography and in shaping of Israeli collective memory and identity. Concurrently scheduled with course C122. S/U or letter grading.

**241. Folklore and Mythology of Near East (4)** Lecture, three hours. Exploration of variety of traditions in ancient Near Eastern literature concerning creation of cosmos, origins of mankind, and boundaries between divine and human realms. Answers to questions concerning origins of evil, pursuit of wisdom, expectations for life beyond death, and quest for immortality are all sought in folklore of ancient religions. Directed readings of ancient literatures. S/U or letter grading.

**290. Seminar: Paleography (4)** Seminar, three hours. Provides students with ability to cope with varieties of manuscripts. S/U or letter grading.

# Near Eastern Languages Courses

## Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Visible Language: Study of Writing (5)** (Same as Asian M20, Indo-European Studies M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium BC. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium BC and how it compares to other modern writing systems. P/NP or letter grading.

**65. Global Time Travel (5)** Lecture, three hours; discussion, one hour. Time travel is our most effective fictional device for asking what past was like, what future will bring, and how our present might look when viewed from other times. Though often associated with Euro-American genre of hard science fiction, time travel is global genre. Study of time travel stories, novels, television productions, and films from variety of periods, regions, and languages in order to explore anxieties genre responds to and other worlds it helps us imagine. Examination of theorists and critics whose work helps explain how time travel interacts with history, narrative, and visuality. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**CM114. Teaching and Learning of Heritage Languages (4)** (Same as Asian CM124 and Slavic CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM214. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**CM214. Teaching and Learning of Heritage Languages (4)** (Same as Asian CM224 and Slavic CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM114. S/U or letter grading.

**248. Anthropology and History of Mediterranean (4)** (Same as Anthropology M248 and History M248.) Seminar, three hours. Introduction to historical and anthropological writings about Mediterranean. Draws on variety of classic and contemporary theories, histories, and ethnographies about Mediterranean Sea. Topics include geographical and imaginary boundaries, Mediterranean honor/shame concepts, colonial and post-colonial Mediterranean, Levantinism, thalassology, Mediterraneanism, French Mediterraneans, Jewish Mediterranean, colonial and post-colonial sea and migrants and mobilities. Focus on critical history of anthropological study of Mediterranean and scholarly literature that emphasizes southern shores of Mediterranean. Letter grading.

**287. Central Asian Studies: Discipline, Methods, Debates (2)** (Same as Anthropology M247Q and History M287.) Seminar, two hours. Introduction to study of central Asia as practiced in humanities and social sciences disciplines. S/U grading.

**495. Preparation for Teaching Language and Literature in Near Eastern Languages and Cultures (2)** Seminar, two hours. Problems and methods of presenting literary texts as exemplary materials in teaching of language and literature in Near Eastern Languages and Cultures. Theory and classroom practice, with individual counseling and faculty evaluation of teaching assistant performances. May not be applied toward MA degree requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Semitic Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good

academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**110. Neo-Aramaic (4)** Lecture, three hours. Grammar and reading of selected texts (folktales, homilies, songs) in modern Aramaic dialects of the Jews and Christians of Kurdistan.

**115. Syriac (4)** Lecture, two hours. Morphology and syntax of Syriac language, introductory reading.

**130. Biblical Aramaic (4)** Lecture, three hours. Requisites: Hebrew 102A, 102B, 102C. Grammar of biblical Aramaic and reading of texts.

**140A. Elementary Akkadian (4)** (Formerly numbered 140A.) (Same as Ancient Near East M141.) Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian. P/NP or letter grading.

**140B. Elementary Akkadian (4)** Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian.

**141. Advanced Akkadian (4)** Lecture, three hours. Advanced Akkadian syntax and grammar; reading of Akkadian historical and literary texts. May be repeated for credit. P/NP or letter grading.

**142. Akkadian Literary Texts (4)** Lecture, three hours. Selected readings from Akkadian myths and epics, with introduction to historical tradition of works and their literary structure. May be repeated for credit. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Semitics. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Semitics. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**210. Ancient Aramaic Dialects (4)** Lecture, three hours. Requisite: course 130. Reading of surviving inscriptions and papyri. Texts include Old Aramaic inscriptions, Egyptian Aramaic texts, Qumran Aramaic, and Targumic Aramaic. May be repeated for credit. S/U or letter grading.

**215B. Syriac (4)** Lecture, two hours. Morphology and syntax of Syriac language; readings in Syriac translation of Bible and Syriac literature. May be repeated for credit. S/U or letter grading.

**220A. Ugaritic (4)** Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Ugaritic language and literature. S/U or letter grading.

**220B. Ugaritic (4)** Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Ugaritic language and literature. May be repeated for credit. S/U or letter grading.

**225. Phoenician (4)** Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Phoenician language and inscriptions. May be repeated for credit. S/U or letter grading.

**230. Seminar: Northwest Semitic Languages and Literatures (4)** Seminar, two hours. May be repeated for credit. S/U or letter grading.

**240. Seminar: Akkadian Language (4)** Seminar, two hours. Readings of texts from various dialects of Akkadian; selected problems in linguistic analysis of Akkadian dialects. May be repeated for credit. S/U or letter grading.

**240X. Seminar: Akkadian Language (1)** Seminar, two hours. Readings of texts from various dialects of Akkadian; selected problems in linguistic analysis of Akkadian dialects. Course for students who participate regularly in class meetings but without the homework required in course 240. May be repeated for credit. S/U grading.

**241. Seminar: Akkadian Literature (4)** Seminar, two hours. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit. S/U or letter grading.

**241X. Seminar: Akkadian Literature (1)** Seminar, two hours. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. Course for students who participate regularly in class meetings but without the homework required in course 241. May be repeated for credit. S/U grading.

**280A. Seminar: Comparative Semitics (4)** Seminar, two hours. S/U or letter grading.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

## Turkic Languages Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Turkish (5)** Lecture, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Grammar, reading, conversation, and elementary composition drills. P/NP or letter grading.

**101B. Elementary Turkish (5)** Lecture, five hours. Requisite: course 101A. Grammar, reading, conversation, and elementary composition drills. P/NP or letter grading.

**101C. Elementary Turkish (5)** Lecture, five hours. Requisite: course 101B. Grammar, reading, conversation, and elementary composition drills. P/NP or letter grading.

**102A. Advanced Turkish (4)** Lecture, five hours. Requisites: courses 101A, 101B, 101C. Continuing study of grammar, conversation, and composition. Readings in modern literature and social science texts. May be repeated for credit. P/NP or letter grading.

**102B. Advanced Turkish (4)** Lecture, five hours. Requisites: courses 101A, 101B, 101C. Continuing study of grammar, conversation, and composition. Readings in modern literature and social science texts. May be repeated for credit. P/NP or letter grading.

**102C. Advanced Turkish (4)** Lecture, five hours. Requisites: courses 101A, 101B, 101C. Continuing study of grammar, conversation, and composition. Readings in modern literature and social science texts. May be repeated for credit. P/NP or letter grading.

**111A. Elementary Uzbek (4)** Lecture, three hours; laboratory, two hours. Elementary grammar, reading, and composition exercises; elementary conversation.

**111B. Elementary Uzbek (4)** Lecture, three hours; laboratory, two hours. Elementary grammar, reading, and composition exercises; elementary conversation.

**111C. Elementary Uzbek (4)** Lecture, three hours; laboratory, two hours. Elementary grammar, reading, and composition exercises; elementary conversation.

**112A. Advanced Uzbek (4)** Lecture, three hours; laboratory, two hours. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.

**112B. Advanced Uzbek (4)** Lecture, three hours; laboratory, two hours. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.

**112C. Advanced Uzbek (4)** Lecture, three hours; laboratory, two hours. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.

**115A. Elementary Azeri (4)** (Same as Iranian M115A.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

**115B. Elementary Azeri (4)** (Same as Iranian M115B.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

**115C. Elementary Azeri (4)** (Same as Iranian M115C.) Lecture, five hours. Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill. P/NP or letter grading.

**116A. Advanced Azeri (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: placement test. Proficiency-based course in descriptive Azeri grammar. Reading and analysis of Azeri literary and folkloric texts in new writing system. High-style composition and conversation. May be repeated for credit. Letter grading.

**116B. Advanced Azeri (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: placement test. Proficiency-based course in descriptive Azeri grammar. Reading and analysis of Azeri literary and folkloric texts in new writing system. High-style composition and conversation. May be repeated for credit. Letter grading.

**116C. Advanced Azeri (4)** Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: placement test. Proficiency-based course in descriptive Azeri grammar. Reading and analysis of Azeri literary and folkloric texts in new writing system. High-style composition and conversation. May be repeated for credit. Letter grading.

**160. Turkish Tradition (4)** Lecture/discussion. Preparation: entrance examination. Survey of cultural history of the Turks, as seen primarily through their literature, from their early history to the present.

**165. Islamic Literary Heritage of Central Asia (4)** Lecture, two hours; discussion, one hour. Systematic survey of Islamic documents produced in Turkish and Persian in Central Asia, with reading of primary sources in English translation. Study of special characteristics of Central Asian Islam.

**170. Turco-Mongolian Nomadic Empires (4)** Lecture, three hours. Required of students in Turkic program. Survey of history of Turkic and Mongolian dominions from the 3rd century BC to AD 19th century (Hsiung-nu, Hsien-pi, Juan-Juan, T'u-Chueh, Uyghur, Khitan, Karakhanid, Seljuq, Kara-Khitay, Khora-zmian, Jengiz-Khanite).

**180. Modern Turkic Languages and Peoples (4)** Lecture, three hours. Required of students in Turkic program and recommended for students in Soviet studies. Ethnic and linguistic survey of the Turkic peoples.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in TurkiC. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in TurkiC. (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**210A. Readings in Ottoman I (4)** Lecture, three hours. Examination of printed texts in Ottoman from 19th and 20th centuries to improve student competence to read, transliterate, and translate Ottoman texts. Readings include selections from newspapers, almanacs, travel books, and literary and historical texts. S/U or letter grading.

**211. Ottoman Diplomats (4)** Lecture, three hours. Requisites: courses 210A, 210B, 210C. Organization and contents of Ottoman archives; reading and discussion of documents and registers. Introduction to use of Ottoman archive materials as a source for historical research.

**596. Directed Individual Study (2 to 8)** Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

**597. Examination Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. PhD Dissertation Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.



# Neurobiology

## Medical History Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**107A. Historical Development of Medical Sciences (4)** Lecture, three hours. Major contributions of medicine and medical personalities from earliest times. Contributions of medicine and medical personalities from earliest times through 1650. P/NP or letter grading.

**107B. Historical Development of Medical Sciences (4)** Lecture, three hours. Major contributions of medicine and medical personalities from earliest times. Subject in the period from 1650 through the 19th century. Illustrated lectures, class discussion, and required readings from selected texts. P/NP or letter grading.

**169. History of Neurosciences (4)** (Same as Neurobiology M169.) Lecture, one hour; discussion, two hours. Development of neurosciences, especially neuroanatomy and neurophysiology, from Enlightenment era through latter 20th century. Emphasis on fundamental nerve functions, cell communication, and technological, conceptual, and cultural influences that have shaped understanding of brain and nervous system. P/NP or letter grading.

### Graduate

**596. Directed Individual Studies in Medical History (2 to 12)** Tutorial, to be arranged. Investigation of subjects in medical history selected by students with advice and direction of instructor. Individual reports and conferences. S/U or letter grading.

## Neurobiology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M169. History of Neurosciences (4)** (Same as Medical History M169.) Lecture, one hour; discussion, two hours. Development of neurosciences, especially neuroanatomy and neurophysiology, from Enlightenment era through latter 20th century. Emphasis on fundamental nerve functions, cell communication, and technological, conceptual, and cultural influences that have shaped understanding of brain and nervous system. P/NP or letter grading.

**171. Variable Topics Research Seminars: Contemporary Biology (2)** (Same as Physiological Science M171.) Seminar, two hours. Limited to undergraduate fellows in Integrated and Interdisciplinary Undergraduate Research Program. Presentations of scientific data from primary research articles and from students' own research. May be repeated for credit. P/NP grading.

**197. Individual Studies in Neurobiology (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research in Neurobiology (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Studies in neuroscience and related subject areas appropriate for training of particular students, which includes reading assignments or laboratory work leading to final oral or written report. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**M200F. Cellular Neurophysiology (4)** (Same as Neuroscience M202 and Physiological Science M202.) Lecture, three hours; discussion, two hours. Requirements: Physiological Science 111A (or M180A or Physics 5C), 166. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

**200G. Biology of Learning and Memory (4)** (Same as Neuroscience M220 and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

**225. Functional Organization of Visual System (2)** Seminar, three hours. Preparation: basic neuroscience course. Recommended: neuroanatomy, neurophysiology, and/or neural systems courses. Designed for neuroscientists, cell biologists, and psychologists. Basic organizational, physiological, and functional principles of visual system and how visual information is processed at different levels of nervous system. Structure, microcircuitry organization and function of retina, central visual nuclei, and primary cortical areas mediating visual behavior. S/U or letter grading.

**255. Seminar: Neural and Behavioral Endocrinology (2)** (Same as Physiological Science M255 and Psychology M294.) Lecture, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

**270. Joint Seminar: Neuroscience Lectures (1)** Seminar, one hour. Formal lectures on current research topics in neuroscience by speakers from national, international, and local neuroscience communities. S/U grading.

# Neurology

## Neurology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Neurology (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Neuroscience, Graduate

## Neuroscience, Graduate Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Graduate

**201. Cell, Developmental, and Molecular Neurobiology (6)** (Formerly numbered M201.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. S/U or letter grading.

**202. Cellular Neurophysiology (4)** (Same as Neurobiology M200F and Physiological Science M202.) Lecture, three hours; discussion, two hours. Requisites: Physiological Science 111A (or M180A or Physics 5C), 166. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

**203. Anatomy of Central Nervous System (4)** (Same as Bioengineering M263.) Lecture, 75 minutes; discussion/laboratory, two hours. Prior to first laboratory meeting, students must complete Bloodborne Pathogens training course through UCLA Environment, Health and Safety. Study of anatomical locations of and relationships between ascending and descending sensory and motor systems from spinal cord to cerebral cortex. Covers cranial nerves and brainstem anatomy along with anatomy of ventricular and vascular systems of brain. Subcortical forebrain areas covered in detail. Integrated anatomy laboratory includes brain dissections and overview of tools for MRI analysis. Letter grading.

**205. Systems Neuroscience (4)** Lecture/discussion, four hours. Introduction to fundamentals of systems neuroscience, with emphasis on integration of molecular mechanisms, cellular processes, anatomical circuits, and behavioral analysis to understand function of neural systems. Letter grading.

**206. Neuroengineering (4)** (Same as Bioengineering M260 and Electrical and Computer Engineering M255.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 5C. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

**207. Integrity of Scientific Investigation: Education, Research, and Career Implications (2)** Discussion, two hours. Designed for graduate students. Debate on topics related to ethical conduct of scientific investigation, with emphasis on critical thinking. Topics include scientific misconduct, mentoring, data ownership, authorship, peer review, use of animals and humans in biomedical research, conflicts of interest, technology, and scientific integrity. S/U grading.

**210A. Introduction to Current Literature in Neuroscience (2)** Discussion, two hours. Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading.

**210B. Introduction to Current Literature in Neuroscience (2)** Discussion, two hours. Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading.

**210C. Introduction to Current Literature in Neuroscience (2)** Discussion, two hours. Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading.

**211A. Evaluation of Research Literature in Neuroscience (2)** Discussion, two hours. Advanced critical analysis of current research in neuroscience. S/U grading.

**211B. Evaluation of Research Literature in Neuroscience (2)** Discussion, two hours. Advanced critical analysis of current research in neuroscience. S/U grading.

**211C. Evaluation of Research Literature in Neuroscience (2)** Discussion, two hours. Advanced critical analysis of current research in neuroscience. S/U grading.

**212A. Evaluation of Research Literature in Neuroengineering (2)** (Same as Bioengineering M261A and Electrical and Computer Engineering M256A.) Discussion, two hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**212B. Evaluation of Research Literature in Neuroengineering (2)** (Same as Bioengineering M261B and Electrical and Computer Engineering M256B.) Discussion, two hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**212C. Evaluation of Research Literature in Neuroengineering (2)** (Same as Bioengineering M261C and Electrical and Computer Engineering M256C.) Discussion, two hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

**215. Variable Topics Research Literature Seminars: Neuroscience (1)** Seminar, two hours. Critical discussion and analysis of current literature for various neuroscience research topics. Only one topic may be taken twice for credit and applied toward neuroscience graduate requirements. S/U grading.

**220. Biology of Learning and Memory (4)** (Same as Neurobiology M200G and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

**222. Brain Imaging and Brain Stimulation (4)** Lecture, four hours. Limited to graduate students in neuroscience, bioengineering, psychology, and School of Medicine. Introduction to fields of brain imaging and brain stimulation, including various imaging modalities and neurostimulation strategies. Introduction to use of brain imaging in isolation or in combination with brain stimulation to understand neural circuitry, systems, and networks in health and disease. Encourages critical thinking about opportunities and limitations of two fields, and how to overcome them by combining two approaches for investigation of brain systems and functions. S/U or letter grading.

**CM223. Neurobiology of Sleep (4)** (Same as Physiological Science CM223.) Lecture, three hours; discussion, one hour. Detailed look into science of sleep. Cellular and molecular mechanisms of falling asleep, many discrete brain structures involved in control of sleep wakefulness, and homeostatic regulation of sleep. How our sleep needs shaped by our evolutionary history, age, and gender. Latest insights into question of function of sleep, critical role sleep plays in memory formation and, close association between sleep and metabolism. Sleep disorders are considered as they provide insights into mechanisms underlying sleep. For background on science of sleep and circadian rhythms, completion of Physiological Science C126 is highly recommended. Concurrently scheduled with course CM123. Letter grading.

**230. Molecular and Cellular Mechanisms of Neural Integration (5)** (Same as Physiological Science M210 and Physiology M210.) Lecture, four hours; discussion, one hour. Requisite: course M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

**233. Mechanisms and Relief of Pain (2)** (Same as Oral Biology M204.) Lecture, two hours. Advanced treatment of neuroanatomical, neurophysiological, and biochemical bases of pain perception. Topics include classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders. Letter grading.

**240. Phenotypic Measurement of Complex Traits (4)** Lecture, three hours. Preparation: background in human genetics helpful. Integrative approach to understanding gene to behavior pathways by examination of levels of phenotype expression across systems (cell, brain, organism), across species (invertebrate, fly, mouse, human), and throughout development across varying environmental milieus. Using examples from human disorders such as schizophrenia and Alzheimer's disease, linking of these diverse approaches in genetic research to map out integrative system of understanding basis of

complex human behavior. Emphasis on basic understanding of methods used at each level of phenotype analysis, along with major resources that can be accessed to gain insight to gene-behavioral links. Letter grading.

**245. Optical Approaches in Neuroscience (4)** Lecture, four hours. State-of-art, light-microscopy-based approaches in neuroscience. Background material on basic optical principles and microscope design, as well as certification in use of lasers. Technical approaches commonly used in study of nervous system, including imaging modalities such as two-photon microscopy, methods for imaging and stimulating neuronal activity, and advanced microscopy approaches such as FRET and FLIM. Letter grading.

**248. Brain and Behavioral Development during Adolescence (4)** (Same as Psychology M248.) Seminar, three hours. Foundational and emerging work on adolescent brain and behavioral development. Topics include cognition, risk taking, emotion, identity, stress, relationships, and population diversity. Discussions of assigned readings and presentations by guest faculty and scientists. S/U or letter grading.

**250. Neural Development and Repair (4)** Lecture, four hours. Specific training in neural development and repair. Each module offers different research topic and provides perspective on its relevance to human diseases, treatments, and unmet needs for future research. Letter grading.

**C251. Computational Neuroscience for Interdisciplinary Scientists (4)** Lecture, two hours; laboratory, one hour. Requisites: course M101A or Psychology 115; Life Sciences 30A and 30B, or Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Life Sciences 40 or Psychology 100A or Statistics 10 or 13. Designed for students in both experimental and computational tracks to acquire significant breadth and depth in computational neuroscience. Highly interdisciplinary study in computational neuroscience. Integrates data-driven modeling, simulations, and analyses of neural dynamics to train students in hypothesis-driven approach to computational modeling. Students can immediately apply acquired knowledge and skills in research or industry settings. Concurrently scheduled with course C151. S/U or letter grading.

**255. Functional Organization of Behavior (2)** Lecture, two hours. Changes in neuronal properties supporting changes in learned behavior. Different types of learning. Role of neurotransmitters and second messengers in changing ion channels of neurons to support associative learning versus long-term potentiation of neurotransmission. S/U or letter grading.

**259. Introduction to Dynamical Systems (4)** Lecture, two hours; discussion, one hour. Introduction to essential concepts of modeling and dynamics, with applications at various levels of physiology and neuroscience. S/U grading.

**260. Introduction to Signal Processing for Neuroscientists (4)** Lecture, four hours. Limited to Neuroscience graduate students. Introductory principles for handling some common types of time-varying data used to measure brain activity (spikes, local field potentials, calcium transients). Analysis of data with simple computer scripts for team-based projects. May not be repeated for credit. Letter grading.

**265. Essentials of Neuro-Oncology (4)** Lecture, 90 minutes; discussion, 90 minutes. Preparation: competence in general statistics, neurobiology, and neuroanatomy. Introduction to essential topics in clinical neuro-oncology and neuro-oncology research. Exposure to multidisciplinary field of neuro-oncology through weekly meetings consisting of lectures from expert faculty and in-depth journal club or topical discussions on both fundamental and contemporary topics in neuro-oncology. Students learn various types of central nervous system tumors, and how they are diagnosed, treated, and monitored. Unique aspects of treating neuro-oncology patients, including issues associated with changes in quality of life, neurocognition, and psychological concerns. Discussion of current and new approaches to neuro-oncology. Letter grading.

**270. Brain Architecture (4)** Lecture, two hours; discussion, one hour. Preparation: first-year neuroscience graduate core courses. Overview of brain architecture including theoretical and methodological approaches for brain connectomic research. Evolution and development of nervous system, comparative neuroanatomy and behavioral neuroanatomy as well as classical and modern data collection methods, image processing pipelines for neuroanatomic data, and neuroinformatics principles. S/U or letter grading.

**CM272. Neuroimaging and Brain Mapping (4)** (Same as Physiological Science M272 and Psychology M213.) Lecture, three hours. Requisites: courses M201, M202. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Concurrently scheduled with course C172. Letter grading.

**273. Neural Basis of Memory (4)** (Same as Psychiatry M270.) Lecture, two hours; discussion, one hour. Anatomical, physiological, and neurological data integrated into models for how behavioral phenomena of memory arise. Discussion of invertebrate memory, cortical conditioning, hippocampus and declarative memory, and frontal lobes and primary memory.

**275. Advanced Techniques in Neurobiology (2)** Lecture, one hour; laboratory, one hour. Preparation: basic biology and chemistry. Designed to provide introduction and, when possible, practical demonstration of a number of techniques used in neurochemical research, with emphasis on techniques used for identification, measurement, and visualization of compounds thought to be important as mediators of intercellular communication in central nervous system. S/U or letter grading.

**C277. Drugs of Abuse: Translational Neurobiology (4)** Lecture, four hours. Requisite: Neuroscience M101A. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Concurrently scheduled with course C177. Letter grading.

**284A. Principles of Neuroimaging I (4)** (Same as Psychiatry M284A and Psychology M288A.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: Psychiatry 292. Course M284A is requisite to M284B. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

**284B. Principles of Neuroimaging II (4)** (Same as Psychiatry M284B and Psychology M288B.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: course M284A. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

**285. Functional Neuroimaging: Techniques and Applications (3)** (Same as Bioengineering M284, Physics and Biology in Medicine M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

**286A. Electroencephalography Methods and Analysis I (4)** Lecture, three hours. Recommended preparation: one term of graduate level statistics, bio-statistics. Students master fundamentals of electroencephalograph (EEG), including understanding of neural origins of EEG signals, principles of data recording, standard methods for experiment designs, data processing, feature extraction, and most common statistical approaches to inference. Letter grading.

**286B. Electroencephalography Methods and Analysis II (4)** Lecture, three hours. Requisite: course 286A, or consent of instructor. Exploration of advanced topics in electroencephalography (EEG). Includes advanced recording, processing and analysis techniques, custom deployment of EEG in basic (e.g., multimodal integration) and translational (e.g., biomarker development) applications, and examination of current limitations and controversies of EEG. Letter grading.

**287. Dynamics of Neural Microcircuits (4)** (Formerly numbered M287.) Lecture, two hours; discussion, two hours. Development of integrative understanding of neural microcircuits that underlie specific functions of sensory processing, generation, and coordination of motor activity, as well as generation and modulation of neural rhythms. Letter grading.

**297. Methods in Developmental Cognitive Neuroscience (4)** (Same as Psychology M297.) Seminar, three hours. Survey of methods and tools used to address developmental cognitive neuroscience questions. S/U or letter grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. S/U grading.

**597. Preparation for PhD Qualifying Examinations (4 to 12)** Tutorial, to be arranged. S/U grading.

**599. Dissertation Research for PhD Candidates (4 to 12)** Tutorial, to be arranged. Designed for students requiring special instruction or time to work on dissertation. S/U grading.

# Neuroscience, Undergraduate

## Neuroscience, Undergraduate Courses

### Lower Division

**10. Brain Made Simple: Neuroscience for 21st Century (4)** Lecture, four hours. Preparation: high school background in either biology or chemistry. Not open for credit to students with credit for course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. General overview and introduction to most exciting and fundamental topics encompassing field of neuroscience. P/NP or letter grading.

**17. Science of Music (4)** Lecture, three hours; discussion, one hour. General overview of basic principles of neuroscience, cognitive psychology, and psychoacoustics to relation of music perception. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Neuroscience Methods: Art and Science of Studying Brain (4)** Lecture, four hours; discussion, 90 minutes. Preparation: high school background in either biology or chemistry. General overview of field of neuroscience to serve as introduction to Neuroscience major. Topics covered include brief history of field, basic neurophysiology and neuroanatomy, research methods, experimental design, data analysis, and career prospects. May not be applied toward elective requirements for major. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M101A. Neuroscience: From Molecules to Mind—Cellular and Systems Neuroscience (5)** (Same as Molecular, Cell, and Developmental Biology M175A, Physiological Science M180A, and Psychology M117A.) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 7C, Physics 1B or 1BH or 5C or 6B. Students must receive grade of C– or better to proceed to next course in series. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

**101B. Neuroscience: From Molecules to Mind—Molecular and Developmental Neuroscience (5)** (Same as Molecular, Cell, and Developmental Biology M175B, Physiological Science M180B, and Psychology M117B.) Lecture, four hours; discussion, 90 minutes. Requisites: course M101A (with grade of C– or better), Life Sciences 7C. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

**101C. Neuroscience: From Molecules to Mind—Behavioral and Cognitive Neuroscience (5)** (Same as Molecular, Cell, and Developmental Biology M175C, Physiological Science M180C, and Psychology M117C.) Lecture, four hours; discussion, 90 minutes. Requisite: course M101A with grade of C– or better. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

**101L. Neuroscience Laboratory (4)** Lecture, two hours; laboratory, three hours. Requisites: courses M101A, M101B (M101B may be taken concurrently). Not open for credit to students with credit for Psychology 116. Introduction to laboratory methods in neuroscience. Laboratory exercises range from molecular and cell biological to behavioral. Hands-on experience with important methodology and experimental approaches in neuroscience. Letter grading.

**102. Introduction to Functional Anatomy of Central Nervous System (4)** Lecture, three hours; laboratory, 90 minutes. Requisite: Life Sciences 2 or 7C. Corequisite: course M101A. Not open to freshmen. Overview of human nervous system, brain development, anatomy and function, pathology. Introduction to brain circuits involved in fear and anxiety, memory, sensory, motor activities. P/NP or letter grading.

**116A. Behavioral Neuroscience Laboratory (4)** (Same as Psychology M116A.) Lecture, one hour; laboratory, three hours. Requisites: courses M101A and M101B (M101B may be taken concurrently), or Psychology 10, 100A, 100B, and 115. Not open for credit to students with credit for Psychology 116B. Designed for Psychobiology, Psychology, and Neuroscience majors. Laboratory experience with various topics in behavioral neuroscience. Hands-on experience with important methodology and experimental approaches in neuroscience. P/NP or letter grading.

**119L. Human Neuropsychology (4)** (Same as Psychology M119L.) Lecture, three hours. Recommended requisites: courses M101A and M101C (or Psychology 115), Psychology 120A or 120B. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

**119N. Visual System (4)** (Same as Psychology M119N.) Lecture, three hours. Requisite: course M101A or Physiological Science 111A or Psychology 115. Ability to image and analyze visual world is truly remarkable feat. Coverage of anatomy and physiology of visual processing from retina to visual cortex through lectures, extensive reading, and discussions. P/NP or letter grading.

**CM123. Neurobiology of Sleep (4)** (Same as Physiological Science CM123.) Lecture, three hours; discussion, one hour. Requisites: courses M101A and M101B or Physiological Science 111A and 111B or consent of instructor. Detailed look into science of sleep. Cellular and molecular mechanisms of falling asleep, many discrete brain structures involved in control of sleep wakefulness, and homeostatic regulation of sleep. How our sleep needs shaped by our evolutionary history, age, and gender. Latest insights into question of function of sleep, critical role sleep plays in memory formation and, close association between sleep and metabolism. Sleep disorders are considered as they provide insights into mechanisms underlying sleep. For background on science of sleep and circadian rhythms, completion of Physiological Science C126 is highly recommended. Concurrently scheduled with course CM223. Letter grading.

**135. Dynamical Systems Modeling of Physiological Processes (5)** (Same as Physiological Science M135.) Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

**140. Brain Injury and Recovery of Function (4)** Seminar, four hours. Requisite: course 102 or Psychology 116A or 116B. Inquiry into what recovery from brain injury specifically means, and if all recovery is same. Addresses history of how science evolved from basic localization of function to understanding more about brain functional recovery. Increases awareness of limitations and surprising potential of brain to adapt to adverse stimuli of brain injury. Discussion of interesting cases and experiments that have molded current understanding of brain's potential for recovery. P/NP or letter grading.

**142. Neurophilosophy: Introduction and Assessment from Neuroscience Perspective (4)** Lecture, three hours. Requisite: course M101A. Overview of philosophical issues and theories surrounding nature of mind and its relationship with body. Examination of case for relevance of current theoretical and experimental results in neuroscience and cognitive science to philosophy of mind. In particular, focus on variety of approaches to understanding and explaining human consciousness and current lively debate about whether scientific understanding of it is possible. Neurophilosophy is relatively new interdisciplinary subject. Study is approached as two-way flow of information, from neuroscience to philosophy and vice versa. Examination of traditional philosophical problems given input of recent neuroscience findings as well as applying philosophical problem-solving approaches to determine which sci-

tific projects related to human consciousness are genuinely new and interesting and which have potential to yield conceptually novel answers. P/NP or letter grading.

**145. Neural Mechanisms Controlling Movement (5)** (Same as Physiological Science M145.) Lecture, four hours. Requisite: course M101A or Physiological Science 111A or M180A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

**150. Biotechnology in Neuroscience (4)** Lecture, two and one half hours. Requisites: courses M101A, M101B. Preparation: background in biology and biochemistry. Designed for third- and fourth-year Neuroscience majors. Science advances through development and adaptation of new tools and technologies. Covers commonly used techniques in neuroscience research, from classic RT-PCR, immunohistochemistry to newly emerged optogenetics, single cell RNAseq, and CRISPR. Students gain better understanding of various methods in field today and tools to advance their own potential research in future. Letter grading.

**C151. Computational Neuroscience for Interdisciplinary Scientists (4)** Lecture, two hours; laboratory, one hour. Requisites: course M101A or Psychology 115; Life Sciences 30A and 30B, or Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Life Sciences 40 or Psychology 100A or Statistics 10 or 13. Designed for students in both experimental and computational tracks to acquire significant breadth and depth in computational neuroscience. Highly interdisciplinary study in computational neuroscience. Integrates data-driven modeling, simulations, and analyses of neural dynamics to train students in hypothesis-driven approach to computational modeling. Students can immediately apply acquired knowledge and skills in research or industry settings. Concurrently scheduled with course C251. P/NP or letter grading.

**161. Personal Brain Management (4)** (Same as Psychiatry M182.) Seminar, four hours. Basic overview of brain function and consideration of some management methods that exist already, and what future may hold. New methods for predicting our own futures and modeling what if scenarios that might alter risks and benefits of different courses of action, based on individual genetic background and other elements of personal history and environmental exposures. Introduction to key principles from science of behavior change, illustrating how important health-related behavioral habits are and how difficult these can be to change and why. Coverage of series of topics that center on personal enhancement of well-being through consideration of stress management, long-term goal and value identification, mapping of long-term goals onto immediate actions, reinforcement learning, meditation, neurofeedback, and time management. Critical appraisal of tools to help students distinguish scientifically validated procedures. Offered in summer only. Letter grading.

**170. Music, Mind, and Brain (4)** (Same as Music Industry M103.) Seminar, three hours; outside study, nine hours. Multidisciplinary approach to understanding brain mechanisms mediating music perception, performance, and cognition. Students' natural interest in music serves as springboard for learning basic concepts about theories of mind, and how brain works to determine perception of harmony and rhythm, emotion and meaning in music, and musical creativity. Designed to help students understand methodologies currently used to investigate brain-behavior correlates. Broad understanding of research topics in cognitive neuroscience; introduction to fundamental principles in neurophysiology, psychophysiology, and neuroanatomy. Letter grading.

**C172. Neuroimaging and Brain Mapping (4)** Lecture, three hours. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Strongly recommended: course 102. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Concurrently scheduled with course CM272. Letter grading.

**176. Auditory Neuroscience of Speech Perception and Vocal Communication (4)** (Same as Physiological Science M176.) Lecture, two and one half hours; discussion, 90 minutes. Requisite: course M101A or Physiological Science 107. Interdisciplinary approach to understanding how humans and other animals communicate emotion and meaning using sound. Weekly research topics in disciplines of systems neuroscience, cognitive neuroscience, psychophysics, and psycholinguistics. Emphasis on fundamental principles in neurophysiology, neuroanatomy, neuroimaging, psychology, and neurology. Letter grading.

**C177. Drugs of Abuse: Translational Neurobiology (4)** Lecture, four hours. Requisite: course M101A. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemi-

ology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Concurrently scheduled with course C277. Letter grading.

**178. Human Electroencephalography and Evoked Potentials in Research and Clinical Diagnosis (4)** Seminar, four hours. Enforced prerequisite: course M101A. Not open for credit to students with credit for course 191A, seminar 1. Emphasis on human electroencephalogram (EEG) and various forms of sensory-evoked potentials. Introduction to number of experimental paradigms that allow for recording of different brain signals from brainstem to cortex. Letter grading.

**179. Clinical Neuroscience: New Concepts in Neurological Disorders (4)** Lecture, four hours. Enforced prerequisite: course M101A. Introduction to neurological diseases. Description of diseases from clinical perspective, description of disorder, dealing with clinical population, and discussion of treatments and underlying causes. Mechanisms and new treatments. Letter grading.

**180. Genetic, Molecular, and Genomic Approaches to Neural Development and Disease (4)** Seminar, three hours. Enforced prerequisites: courses M101A, M101B. Not open for credit to students with credit for course 191C, seminar 1. In-depth study of genetic, molecular, and genomic approaches to studying nervous system development and disease. Overview of current technologies used to generate mouse models for genetic and phenotypic analysis. Review of techniques for studying development and disease. Integrative genomic approaches for identifying and characterizing gene(s) involved in these processes. Emphasis on mouse models, but other model organisms considered as well. Letter grading.

**181. Cellular and Molecular Mechanisms of Learning and Memory (4)** Seminar, four hours. Enforced prerequisite: course M101A. Cellular models of learning and memory. Genetic and molecular approaches to learning and memory. Learning and memory deficits in neuropsychiatric diseases. LTP and LTD models. Letter grading.

**182. Pharmacology of Drugs of Abuse (4)** Seminar, four hours. Enforced prerequisite: course M101A. Not open for credit to students with credit for course 191A, seminar 3. Pharmacology of stimulants, depressants, hallucinogens, and opioids. Discussion of how drugs interact with central nervous system and produce dependence, addiction, and chronic toxic affects. Letter grading.

**186. Neural Stem Cells: Biology, Diseases, and Therapies (4)** Lecture, two and one half hours. Preparation: background in biology and biochemistry. Enforced prerequisites: courses M101A, M101B. Designed for third- and fourth-year Neuroscience majors. Comprehensive coverage of stem cells of nervous system during development and adulthood, involvement of stem cells in diseases (e.g., brain tumors, Alzheimer's, Parkinson's), and use of stem cells for therapy. P/NP or letter grading.

**187. Neurobiology of Bias and Discrimination (4)** (Same as Physiological Science M106 and Psychology M166.) Lecture, four hours. Limited to junior/senior neuroscience, physiological science, and psychology students. Exploration of aspects of mammalian brain function that generate preference, bias, and discrimination. Consideration of research at multiple levels of analysis from genetics to neural circuits to behavior. Discussion of societal implications of these research findings, including their relevance to public policies and criminal justice system. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Neuroscience—Behavioral and Cognitive Neuroscience (4)** Seminar, three hours. Requisite: course M101A or Physiological Science 111A. Topics on one or more aspects of neuroscience. Reading, discussion, and development of culminating project. May be applied as elective only in specific area of group 2. May be repeated once for credit. P/NP or letter grading.

**191B. Variable Topics Research Seminars: Neuroscience—Systems and Integrative Neuroscience (4)** Seminar, three hours. Requisite: course M101A or Physiological Science 111A. Topics on one or more aspects of neuroscience. Reading, discussion, and development of culminating project. May be applied as elective only in specific area of group 2. May be repeated once for credit. P/NP or letter grading.

**191C. Variable Topics Research Seminars: Neuroscience—Molecular, Cell, and Developmental Neuroscience (4)** Seminar, three hours. Enforced prerequisite: course M101B. Topics on one or more aspects of neuroscience. Reading, discussion, and development of culminating project. May be applied as elective only in specific area of group 2. May be repeated once for credit. P/NP or letter grading.

**191H. Honors Seminars: Neuroscience (4)** Seminar, four hours. Preparation: one statistics course (Statistics 10 or equivalent). Limited to neuroscience honors program students. Instruction in principles of scientific method, ethics, and written and oral communication; critique of current journal articles and research projects. Presentation of individual research. May not be applied toward elective requirements for major. Must be taken during Winter Quarter of academic year that students enroll in courses 198A and 198B. Letter grading.

**192A. Practicum in Neuroanatomy for Undergraduate Assistants (2)** Seminar, three hours; laboratory, one hour. Requisites: courses M101A and 102, with grades of A. Limited to senior Neuroscience majors. Training and supervised practicum in neuroanatomy for undergraduate assistants. Students assist faculty members and graduate teaching assistants in laboratory only. May not be applied toward elective requirements and may not be repeated for credit. P/NP or letter grading.

**192BX. Project Brainstorm: Neuroscience K-12 Outreach (4)** (Formerly numbered 192B.) Seminar, one hour; fieldwork, three hours. Limited to juniors/senior Neuroscience majors selected for Project Brainstorm Capstone. Completion of this course in winter and spring quarters is required for successful completion of Project Brainstorm Capstone. Course to be supervised by faculty and teaching assistant advisers. Project Brainstorm is K-12 science education outreach program of Brain Research Institute (BRI) and Neuroscience PhD and undergraduate programs that stimulates interest in science for children and young adults in grades K-12 by providing hands-on learning experiences that emphasize function and importance of brain. Students are expected to prepare age-appropriate lesson plans to be used in Project Brainstorm classroom visits. Students meet on regular basis with supervisors and provide periodic reports of their experience. May be repeated once for credit. Letter grading.

**192CX. Drug Abuse and Society: Conveying Concepts to High School Students (4)** (Formerly numbered 192C.) Seminar, four hours (seven weeks); fieldwork, four hours (three weeks). Enforced prerequisites: courses M101A, C177. Limited to junior/senior Neuroscience majors selected for DOPA Team capstone option. Preparation of students to give accurate, knowledgeable, and age-appropriate lectures in area of drug abuse to students at local high schools. Designed as followup to course C177 where students learned didactic material on mechanisms of action and translational aspects of drugs of abuse. Students meet on regular basis with supervisors and provide periodic reports of their experience. Letter grading.

**193. Journal Club Seminars: Current Research in Brain Development and Regeneration (1)** Seminar, one hour. Requisite: course M101B. Limited to undergraduate students. Review and discussion of recent research papers that make potential breakthroughs in understanding of brain development and regeneration. May be repeated for credit. P/NP grading.

**198A. Honors Research in Neuroscience (4)** Tutorial, 12 hours minimum. Requisites: courses 99, M101A. Limited to neuroscience honors program students. Directed independent research involving extensive reading and development of honors thesis or comprehensive project under direct supervision of faculty member. For departmental honors, students must also take course 191H. Maximum of 8 units of courses 198A, 198B, 199 may be applied toward major. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

**198B. Honors Research in Neuroscience (4)** Tutorial, 12 hours minimum in laboratory. Requisite: course 198A. Continued reading and research that culminate in honors thesis under direct supervision of faculty member. For departmental honors, students must also take course 191H. Maximum of 8 units of courses 198A, 198B, 199 may be applied toward major. Individual contract required. Letter grading.

**199A. Directed Research in Neuroscience (4)** Tutorial, 12 hours minimum. Enforced requisites: courses 99, M101A. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Maximum of 8 units of courses 198A, 198B, 199A, 199B may be applied toward major. Individual contract required. In Progress grading (credit to be given only on completion of course 199B).

**199B. Directed Research in Neuroscience (4)** Tutorial, 12 hours minimum. Enforced requisite: course 199A. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Continued supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Maximum of 8 units of courses 198A, 198B, 199A, 199B may be applied toward major. Individual contract required. Letter grading.

**199C. Continued Directed Research in Neuroscience (4)** Tutorial, 12 hours minimum in laboratory. Enforced requisite: course 198B or 199B. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Continued reading and research that culminate in report under direct supervision of faculty mentor. May not be applied toward major. May be repeated for credit. Individual contract required. Letter grading.

# Neurosurgery

## Neurosurgery Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Neurosurgery (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.



# Nursing

## Nursing Courses

### Lower Division

**3. Human Physiology for Healthcare Providers (5)** Lecture, three hours; laboratory, two hours. Basic understanding of human physiological processes, with emphasis on applications to patient evaluation and care. Concepts underlying normal function and how alterations in these normal functions can affect body systems. Knowledge and understanding of these normal human processes is basic to providing quality nursing care. Examination of system variations across lifespan. Letter grading.

**10. Introduction to Nursing and Social Justice I (2)** Lecture, two hours. Within context of history of nursing, introduction to practice of nurses, including role of advocacy. Discussion of effective use of self as professional nurse in relation to ethics, cultural competence, and human diversity. Introduction to ethical principles (justice, autonomy, veracity, beneficence, confidentiality) and professional values (altruism, autonomy, human dignity, integrity, and social justice) in relation to nursing practice throughout history in health/illness and end-of-life contexts. Letter grading.

**13. Introduction to Human Anatomy (5)** Lecture, three hours; laboratory, two hours. Structural presentation of human body, including musculoskeletal, nervous, circulatory, respiratory, digestive, renal, and reproductive systems. Laboratory uses virtual cadaver dissection and examination. Letter grading.

**15. Social Determinants of Health and Social Justice: Introduction to Professional Nursing Roles (4)** Lecture, three hours; discussion, two hours. International and domestic nursing practice provides rich history of changing roles within context of ethics, and social justice. Analysis of ethical principles of justice, autonomy, veracity, beneficence, and confidentiality and professional values of altruism, autonomy, human dignity, integrity, and social justice in relation to (nursing) practice across lifespan development and across health-illness continuum. Exploration of social determinants of health within context of social, cultural, legal, and political forces and traditions of paternalism affecting professional nursing in diverse populations. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Nursing and Social Justice II (2)** Lecture, two hours. Requisite: course 10. Advanced discussion on history of nursing, with focus on role of contemporary nursing in relation to ethics and social justice. Analysis of ethical principles (justice, autonomy, veracity, beneficence, confidentiality) and professional values (altruism, autonomy, human dignity, integrity, and social justice) in relation to nursing practice throughout history in health/illness and end-of-life contexts. Evaluation of social, cultural, legal, and political forces in relation to paternalism for professional nurses working with diverse patient populations in the 21st century. Letter grading.

**50. Fundamentals of Epidemiology (4)** Lecture, three hours; discussion, one hour. Epidemiology is interdisciplinary science with goal of identifying and describing patterns of disease occurrence, identifying determinants of disease, and evaluating disease prevention and health care treatment efforts. With its focus on human populations, epidemiology is directly linked with public health research, policy, and practice. Introduction to fundamental definitions, concepts, methods, and critical thinking used in epidemiologic study. Designed to lay foundation for future study to evaluate factors related to health outcomes in human populations using epidemiologic principles. Letter grading.

**54A. Pathophysiology I (3)** Lecture, three hours. Requisites: courses 3, 13 taken within past three years. Designed to provide students with basic understanding of pathophysiological changes that occur within internal environment of individual. Concepts underlying pathologic changes across all body systems are presented. Understanding these alterations is basic to providing quality nursing care. System variations across lifespan are addressed. Letter grading.

**54B. Pathophysiology II (2)** Lecture, two hours. Requisite: course 54A. Designed to provide students with understanding of pathophysiological changes that occur at cellular, tissue, and organ level across selected body systems within internal environment of individual. Presence of dysfunction or disease of selected systems is provided as rationale for nursing diagnosis and therapeutic interventions. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**115. Pharmacology and Therapeutics (5)** Lecture, four hours. Requisites: courses 54A, 54B. Clinical pharmacology for undergraduate nursing students, beginning with emphasis on basic pharmacologic principles. Focus on major drug classes and their mechanism of action, pharmacokinetics, adverse effects, and clinical issues. Letter grading.

**140. Advanced Growth and Development in Culturally Diverse Populations (5)** Lecture, five hours. Introduction of primary prevention strategies as they pertain to health and wellness across lifespan, using population-based approach to nursing care of diverse populations. Includes priorities in reproductive health including issues related to contraception and parenting, well child care, school-age health, and chronic illness prevention strategies for young and middle-aged adults and elderly who live independently in communities or within institutions. Letter grading.

**141. Nutrition for Health Care Providers (5)** Lecture, four hours; laboratory, three hours. Critical analysis of nutrition prevention strategies using population-based, scientific, and clinical approaches to care of diverse populations. Consideration of nutrition in relation to prevention of disease and recovery from disease. Covers biological, chemical, public health, and clinical aspects of major macronutrients and micronutrients, digestion, energy assessment, obesity, malnutrition, dietary assessment, nutritional therapies, and exercise using candidate diseases approach. Examination of influence of overarching political, societal, and governmental systems within U.S. on observed nutritional patterns. Exploration of food production in relation to climate change. Inequality of food choice and availability as well as consumption are linked to health disparities. Letter grading.

**150A. Fundamentals of Professional Nursing I (4)** Lecture, three hours; laboratory, three hours. Requisites: courses 10, 20, 54A. Focuses on theoretical foundations of primary, secondary, and tertiary prevention as they relate to nursing care management in acute care settings for Nursing BS students. Emphasis is on application of relevant theories to Nursing BS practice roles in health care systems through case study examples, with focus on application to clinical practice settings that include culturally diverse populations. Concepts of communication, nursing process as clinical decision-making strategy, and critical thinking skills are introduced as essential to practice of professional nursing. Learning experiences in nursing skills laboratory and in clinical settings are integral components. Introduction to mathematics calculations and terminology used in clinical setting. Letter grading.

**150B. Fundamentals of Professional Nursing II (4)** Lecture, three hours; laboratory, three hours. Requisites: courses 150A, 152A, 152B, 174. Continuation of course 150A. Expansion of student knowledge on practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continua. Concepts of communication, interdisciplinary communication and collaboration, interpersonal relationships, cultural competence, and nursing process with critical thinking skills as clinical decision-making strategies essential to practice of professional nursing. Characteristics and roles of professional nursing. Development of caregiver, teacher, and collaborator roles in learning experiences in nursing skills laboratory and clinical settings. Continued work on mathematical calculations and terminology with addition of intravenous (IV) drip medication calculations used in clinical setting. Letter grading.

**152A. Health Promotion: Growth and Development in Culturally Diverse Populations (2)** Lecture, two hours. Introduction to primary prevention strategies as they pertain to health and wellness across lifespan, using population-based approach to nursing care of diverse populations. Priorities in growth and development and reproductive health, including issues related to contraception and parenting; well-child care, school-age health, and chronic illness-prevention strategies for young- and middle-aged adults; elderly who live independently in communities or within institutions. Analysis of influence of overarching political, societal, and governmental systems within U.S. Letter grading.

**152B. Health Promotion: Nutrition in Culturally Diverse Populations (2)** Lecture, two hours. Examination of primary prevention strategies involving nutrition using population-based and clinical approaches to nursing care of diverse populations. Investigation of nutrition in relation to prevention of disease and recovery from disease. Covers biological, public health, and clinical aspects of major macro- and micronutrients, obesity, malnutrition, dietary assessment, nutritional therapies, and exercise using candidate disease ap-

proach. Examination of influences of overarching political, societal, and governmental systems within U.S. and outside U.S. on observed nutritional patterns. Letter grading.

**C155. Global Health Elective: Globalization, Social Justice, and Human Rights (3)** Seminar, two hours. Exploration of theories, issues, debates, and pedagogy associated with globalization, social justice, and human rights and how these perspectives influence human health and well-being. Provides students with unique opportunity to explore these topics within classroom, via Internet and other technologies, and in other classrooms located around globe. Students, through collaborative projects with peers around world, reflect on how globalization shapes and transforms local communities and national cultures. Concurrently scheduled with course C255. Letter grading.

**160. Secondary Prevention (4)** Lecture, four hours. Requisites: courses 150A, 150B, 152A, 152B. Screening and early detection of illness to prevent chronic or acutely deteriorating illness. Expanding on concepts of health and human development and using nursing process, application of nursing role in providing care to individuals and their families to screen, diagnose, and treat illness at earliest possible time to prevent disability or premature mortality. Examination of health problems of individuals within context of family, social and community systems, and interdisciplinary healthcare systems. Emphasis on differences in developmental stages in response to screening for early and late signs and symptoms of illness in ambulatory and acute care settings, community agencies, rehabilitation units, outpatient specialty clinics and surgical units, and home and community settings. Letter grading.

**161. Psychiatric Mental Health Nursing (5)** Lecture, three hours; clinical, six hours. Requisites: courses 160, 162B. Knowledge development and skill assessment to promote mental health of individuals. Exploration of research underlying assessment, diagnosis, and pharmacotherapeutic and psychological treatment of individuals with psychiatric disorders. Application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients. Letter grading.

**162A. Foundational Concepts for Tertiary Prevention and Care of Medical-Surgical Patients and Families (4)** Lecture, three hours; clinical, three hours. Requisites: courses 54A, 54B, 150A. Corequisites: courses 115, 150B. Examination of nursing assessment and management of common health problems that adults experience. Theory content in basic assessment, health history, and diagnostic reasoning for selected health problems, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of medical and surgical clients and their families. Introduction to concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care used during clinical experiences. Letter grading.

**162B. Tertiary Prevention and Care of Medical-Surgical Patients and Families (6)** Lecture, four hours; clinical, six hours. Requisite: course 162A. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of adult patients with complex illness, including multifaceted assessment, health history, and diagnostic reasoning skills, and emphasis on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, evidence-based practice, patient safety, and communication concepts as applied to care of medical and surgical patients. Supervised practicum experience within settings of multidisciplinary teams directing care of medical-surgical clinical units, with focus on clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Intermediate-level assessment, health maintenance, and management of symptoms across lifespan. Letter grading.

**162C. Tertiary Prevention and Care of Complex Medical-Surgical Patients and Families (8)** Lecture, four hours (10 weeks); clinical, 24 hours (five weeks). Requisite: course 162B. Nursing assessment and management of acute and chronic health problems of acutely ill adults. Content in assessment, health history, and diagnostic reasoning with emphasis on social, cultural, and developmental influences. Integration of pathophysiology, pharmacology, stress and adaptation, adult development theory, therapeutic interventions, evidence-based practice, patient safety, and communication concepts as applied to care of acutely ill medical surgical patients, with complex and comorbid conditions, and their families. Emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care. Diagnosis and management of health care problems managed by master's-level clinical nurses in acute care settings. Letter grading.

**163. Nursing Care of Geriatric Patients and Families (3)** Lecture, two hours; clinical, one hour. Requisite: course 162A. Addresses prevention and management of acute and chronic health problems of older adults. Theory content emphasizes assessment, goal setting, treatment planning, and evaluation of nursing care of older adults and their families with emphasis on psychosocial, cultural, and developmental influences. Students integrate knowledge of pathophysiology, pharmacology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of older adult patients and their families. Emphasis on concept of nurse as nurse scientist with critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidenced-based practice, and clinical thinking that maximize patient safety and quality care for older adults are employed during clinical experiences. Letter grading.

**164. Maternity Nursing (5)** Lecture, three hours; clinical, six hours. Requisites: courses 160, 160B. Nursing assessment and management for selected acute and emergent problems in maternity/newborn patients, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to childbearing families, with application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Supervised clinical practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating nursing care for maternity/newborn patients. Intermediate-level assessment, health maintenance, and management of symptoms in this population. Letter grading.

**165. Pediatric Nursing (5)** Lecture, three hours; clinical, six hours. Requisites: courses 160, 162B. Nursing assessment and management of acute, chronic, critical, and emergent illnesses in infants, children, and adolescents with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and family-centered care concepts as applied to care of infants, children, and adolescents. Application of nursing process, evidence-based practice, and problem-solving and critical-thinking strategies to improve patient safety, care quality, and health outcomes. Supervised practicum experience within setting of multidimensional team in clinical interpretation, assessment, and diagnostic data for purpose of planning, implementing, and evaluating nursing care for infants, children, and adolescents. Letter grading.

**168. Advanced Leadership and Role Integration (5)** Lecture, five hours. Requisites: courses 161, 162C, 163, 164, 165. Leadership and management theories and models, resource allocation and management, delegation and teamwork, conflict resolution, healthy work environments, legal and ethical aspects of professional practice, evaluation of professional practice, patient safety and quality improvement, accreditation process for health care systems, and contemporary issues in workplace. Emphasis placed on integration of all professional role behaviors, application of research, evidence-based practice, and leadership-management of patient-centered care as transition is made from student role to that of practicing professional nurse. Focus placed on preparation for National Council Licensure Examination (NCLEX). Letter grading.

**169. Clinical Internship: Integration (12)** Clinical, 36 hours. Requisites: courses 161, 162C, 163, 164, 165. Supervised practicum experience within clinical setting as part of interdisciplinary health care team. Focus on application of theory in clinical setting and interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Students design and complete quality improvement project that contributes to unit's goals and objectives. Students implement advanced-level assessment, health maintenance, and management of symptomatology across lifespan. P/NP grading.

**171. Public Health Nursing (6)** Lecture, three hours; clinical, nine hours. Requisites: courses 161, 162C, 163, 164, 165. Theoretical content focuses on population-based approach to public health nursing in relation to health promotion and disease prevention at level of individuals, families, communities, and systems. Clinical practicum concentrates on population-based public health nursing in culturally diverse settings including health departments, health policy institutions, and public service agencies. Clinical practicum activities include health promotion and disease prevention at level of communities, populations, and systems, both domestically and globally. Letter grading.

**172. Care Work: Disability Justice and Health Care (2)** (Same as Disability Studies M172.) Lecture, one hour; discussion, one hour. Exploration of nature, history, models, and propositions of care, care work, disability, disability justice movement, and health care. Consideration of intersections, interdependence, and complexities of formal and informal care webs and care economies between caregivers and receivers, which includes kin, advocates, disability communities, and health professionals. Use of multi-media, scholarly

texts, and theoretical frameworks from disability justice, disability studies, film, gender studies, health, labor studies, law, nursing, and public policy to investigate the concepts of care and care work. Letter grading.

**172XP. Care Work: Disability Justice and Health Care (3)** (Same as Disability Studies M172XP) Seminar, one hour. Corequisite: course M172. Exploration of nature, history, models, and propositions of care, care work, disability, disability justice movement, and health care. Consideration of intersections, interdependence, and complexities of formal and informal care webs and care economies between caregivers and receivers, which includes kin, advocates, disability communities, and health professionals. Use of multi-media, scholarly texts, and theoretical frameworks from disability justice, disability studies, film, gender studies, health, labor studies, law, nursing, and public policy to investigate the concepts of care and care work. Emphasis on community engagement with observational and collaborative interaction and learning in governmental, non-profit, community-based organizations, or health-care networks of disability care. Letter grading.

**173W. Introduction to Nursing Research and Writing II (5)** Lecture, five hours. Requisite: English Composition 3. Introduction to planning research project based on simple question. Review of components of research activities: specific aims and study purposes, variable definition, sample selection, data collection tools, data analyses, and ethical conduct in research studies. Examples of research used as models to demonstrate steps of research process as related to nursing practice. Emphasis on comprehension of research terminology and concepts that are part of each step of research process. Students critique published research. Study by example of relationship between theory and nursing research. Satisfies Writing II requirement. Letter grading.

**174. Physical Assessment (4)** Lecture, three hours; laboratory, three hours. Requisites: courses 3, 13. Designed to provide in-depth review and synthesis of physical assessment skills and knowledge covering lifespan. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

**175. Physical Assessment for Advanced Practice (4)** Lecture, three hours; laboratory, three hours. Comprehensive review and synthesis of physical assessment skills and knowledge covering lifespan and in diverse populations. Emphasis on history-taking related to general health status and specific complaints, as well as detailed physical examination techniques. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

**177. Public Health Nursing (6)** Lecture, three hours; clinical, three hours. Theoretical content focuses on population-based approach to public health nursing in relation to health promotion and disease prevention at level of individuals, families, communities, and systems. Designed for health workers licensed as licensed practical nurses, licensed vocational nurses, and registered nurses holding Associate Degree in Nursing (ADN) or Diploma in Nursing and licensed as registered nurse. Clinical practicum concentrates on population-based public health nursing in culturally diverse settings including health departments, health policy institutions, and public service agencies. Clinical practicum activities include health promotion and disease prevention at level of communities, populations, and systems, both domestically and globally. Letter grading.

**188. Special Topics in Nursing (4)** Lecture, three hours; discussion, one hour. Limited to junior/senior Nursing majors. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

**196. Research Apprenticeship in Nursing n(2 to 4)** Tutorial, four hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

**197. Individual Studies in Nursing (2 to 4)** Tutorial, one hour. Limited to junior/senior Nursing majors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**199. Directed Research or Senior Project in Nursing (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200. Health Promotion and Assessment across Lifespan (4)** Lecture, four hours. Review and discussion of research, theories, clinical practice guidelines, healthcare systems, and policies that influence assessment of health and health behaviors, health promotion, and screening of disease across

lifespan among diverse populations in multiple settings in communities for advanced practice nurse (clinical nurse specialist and nurse practitioner). Letter grading.

**202. Philosophy of Nursing Science (4)** Lecture, four hours. Focus on philosophy of nursing science by exploring genealogies of thought that underpin epistemological assumptions about knowledge. Examination of philosophical concepts that shape discipline of nursing in relation to their influence on scientific reasoning and methods of inquiry, both quantitative and qualitative, used by nurse scientist to create new knowledge. Analysis of contemporary schools of thought (modern and postmodern) in relation to nursing scholarship as well as role of nurse scientist as leader in policy development in greater health care milieu. Letter grading.

**204. Research Design and Critique (4)** Lecture, 90 minutes; discussion, 90 minutes. Complex research designs and analysis of multiple variables and research utilization. Emphasis on techniques for control of variables, data analysis, and interpretation of results. Focus on in-depth analysis of interrelationship of theoretical frameworks, design, sample selection, data collection instruments, and data analysis techniques. Content discussed in terms of clinical nursing research problems and application to clinical settings. Letter grading.

**205A. Introduction to Qualitative Methods in Research (4)** Lecture, four hours. Requisite: course 202. Introduction to qualitative research design in nursing science. Examination of major methodologies that guide qualitative research in relation to various strategies for data collection (interviews, participant observation, focus groups), data analysis, and data interpretation. Scientific rigor and ethical concerns for research with human participants critically examined. Letter grading.

**205B. Advanced Qualitative Research: Grounded Theory Methodology I (4)** Lecture, four hours. Requisite: course 205A or equivalent approved by instructor. Students design and implement qualitative project study based on grounded theory methodology. Symbolic interactionism and constructivism as foundation with grounded theory as guide to recruit small sample, collect data through interviews and observations, and simultaneously analyze data through inductive coding and memoranda writing. Employment of constant comparison and examination of key elements of self-reflexivity and research ethics. Letter grading.

**205C. Advanced Qualitative Research: Grounded Theory Methodology II (4)** Lecture, four hours. Requisites: courses 205A, 205B, or equivalent as approved by instructor. Advanced techniques for simultaneous collection and analysis of qualitative data. Employment of advanced levels of coding based on constructivist grounded theory methodology and situational analysis. Development of conceptual formulation (or grounded theory) based on pilot project data collected and analyzed as part of course. Letter grading.

**206A. Nursing Concept Development (2)** Lecture, two hours. Requisites: course 202 or philosophy of science (may be taken concurrently), four units of nursing theory. Examination of history of conceptual and theoretical thinking in nursing and contextual issues that continue to influence development of nursing knowledge and nursing science. Application of skills fundamental to concept analysis and development in nursing and integral to use in nursing theory and research. Letter grading.

**206B. Nursing Theory Development (2)** Lecture, two hours. Requisites: courses 202 or philosophy of science (may be taken concurrently), 206A. Preparation: 4 units of nursing theory. Critical analysis of role of theory and theoretical frameworks in developing nursing research. Application of skills fundamental to development of theory in nursing and integral to use of theory in nursing research. Letter grading.

**207. Quantitative Research Designs of Clinical Phenomena (3)** Lecture, two hours; discussion, one hour. Requisites: courses 202, 206A, 210A, 210B, Biostatistics 100B. Introduction to wide array of quantitative research study designs. In-depth examination of dynamic interaction between research question and process and theoretical approaches to experimental- and many quasi-experimental- and non-experimental-study designs. Examination of potential threats to validity of and other design characteristics that are associated with research-study designs. Letter grading.

**208. Research in Nursing: Measurement of Outcomes (3)** Lecture/discussion, three hours. Requisites: courses 202, 205A, 206A, 206B, 207, 210A, 210B, Biostatistics 100A, 201A. Advanced discussions of psychosocial, behavioral, and biophysical measurement and analysis in nursing research. Analysis of psychometrics, reliability, and internal validity of research instruments in relation to outcomes in nursing research. Letter grading.

**209. Human Diversity in Health and Illness (4)** Lecture, four hours. Human diversity in response to illness that nurses diagnose and treat, centering on culture and human belief systems associated with diverse orientations related to ethnicity and gender. Provides conceptual base that nurses can use in clinical practice, research, teaching, and administration. Letter grading.

**210A. Critical Review of State of Science in Nursing Research (3)** Lecture, three hours. Requisite: doctoral standing or consent of instructor. In-depth exploration of state of science for health service, biological, vulnerable populations, and biobehavioral research topics. Students explore research on particular phenomena, analyze current and historical scholarly findings in literature, critique significance of focus on this phenomenon for nursing science, identify crucial and meaningful gaps in knowledge through systematic review of research literature, and provide recommendations for future nursing research in biologic, biobehavioral, vulnerable populations, and health services research. Letter grading.

**210B. State of Science in Nursing: Critical Synthesis of Literature (3)** Lecture, three hours. Requisite: doctoral standing or consent of instructor. In-depth analysis of published research relevant for health service, biological, vulnerable populations, and biobehavioral topics. Students deepen and refine understanding of state of science and scholarship relevant to research area. Students broaden exploration and analysis of identified gaps in current knowledge through advancing systematic review, critique, and synthesis of research literature. Letter grading.

**211. Women's Health Primary Care (4)** Lecture, three hours; discussion, one hour. Theory and research on assessment and management of women's health issues during reproductive years. Clinical topics include gynecology, family planning, pregnancy, and postpartum care, with emphasis on health promotion of women during reproductive years in primary care settings. Letter grading.

**212. Family Healthcare Perspectives (2)** Lecture, two hours. Overview of conceptual frameworks related to contemporary family structure and functioning, with particular emphasis on health. Family is understood broadly to include non-traditional families; consideration of cross-cultural views of families as well. Identification of limitations of current theory and research related to family study and applicability of current knowledge to various problems encountered in care of families. Letter grading.

**213. Worker Health and Safety: Role and Theory (4)** Lecture, four hours. Occupational and environmental health nursing practice and research related to workplace health and safety, work/family life, environment, and health. Letter grading.

**214. Seminar: Advanced Concepts in Oncology Nursing (4)** Seminar, four hours. Designed for adult/gerontology acute care, gerontologic, and family nurse practitioners and clinical nurse specialists. Comprehensive overview of oncologic care. Advanced practice nursing, with emphasis on theories and research related to prevention, detection, health history/risk assessment, cancer diagnosis and staging, treatment, rehabilitation, oncologic emergencies, genetics, and psychosocial issues to provide emotional and family-focused care related to solid tumors and hematologic malignancies. In-depth investigation of symptom management (nausea and vomiting, dyspnea, fatigue, cognitive dysfunction, anemia, immunosuppression, anxiety, depression). Evidence-based practice guidelines provide comprehensive review of health promotion, acute, chronic, and late effects, and psychological concepts in long-term survivorship. Letter grading.

**216A. Adult/Gerontology Concepts for Advanced Practice Registered Nurses in Acute Care I (4)** Lecture, four hours. Requisites: courses 200, 231. Corequisite: course 224. Course 216A is requisite to 216B, which is requisite to 216C. Assessment and management of health problems affecting adult/gerontology population from late adolescence to senescence in acute care settings. Synthesis of knowledge from advanced courses in pathophysiology, pharmacotherapeutics, health promotion, and evidence-based psychosocial care and cultural constraints. Letter grading.

**216B. Adult/Gerontology Concepts for Advanced Practice Registered Nurses in Acute Care II (4)** Lecture, four hours. Requisites: courses 200, 216A, 224, 231. Assessment and management of health problems affecting adult/gerontology population from late adolescence to senescence in acute care settings. Synthesis of knowledge from advanced courses in pathophysiology, pharmacotherapeutics, health promotion, and evidence-based psychosocial care and cultural constraints. Letter grading.

**216C. Adult/Gerontology Concepts for Advanced Practice Registered Nurses in Acute Care III (4)** Lecture, four hours. Requisites: courses 200, 216A, 216B, 224, 231. Assessment and management of health problems affecting adult/gerontology population from late adolescence to senescence in acute care settings. Synthesis of knowledge from advanced courses in pathophysiology, pharmacotherapeutics, health promotion, and evidence-based psychosocial care and cultural constraints. Letter grading.

**220. Theories of Instruction and Learning in Nursing (3)** Lecture, two hours. Theories of learning, curriculum and program development, and principles and techniques of evaluation. Examination of educator role of advanced practice nurse in variety of settings and with diverse cultural and socioeconomic

groups. Opportunities provided for skill development in use of computer-based information systems and development of instructional aids. Letter grading.

**223. Childhood Development: Research and Application to Nursing (3)** Lecture, three hours. Critique and evaluation of current research and theory in child development and their application to care of children. Provides scientific basis for understanding human growth and development, anticipating problems, and managing barriers to growth and development throughout childhood. Letter grading.

**224. Advanced Pharmacology for Advanced Practice Registered Nurses (5)** Lecture, five hours. Requisite: course 231. In preparation for prescriptive authority, focus on major drug classes and their mechanisms of action, pharmacokinetics, adverse effects, and clinical uses. Advanced knowledge of and skills in pharmacology for clients/patients with stable acute or chronic conditions. Letter grading.

**225A. Advanced Pharmacology I (3)** Lecture, three hours. Course 225A is requisite to 225B. Emphasizes basic pharmacological principles in addition to clinical knowledge and skills necessary for patient-centered care with stable acute or chronic conditions. Focus on major pharmacological classes, their mechanism of action, pharmacokinetics, indications, and adverse effects. Discussion of quality and safety of pharmacological interventions in clinical practice, with emphasis on collaborative teamwork (i.e. nurses, physicians, pharmacists) and evidence-based practice (e.g. current guidelines). Letter grading.

**225B. Advanced Pharmacology II (2)** Lecture, two hours. Requisite: course 225A. Emphasizes basic pharmacological principles in addition to clinical knowledge and skills necessary for patient-centered care with stable acute or chronic conditions. Focus on major pharmacological classes, their mechanism of action, pharmacokinetics, indications, and adverse effects. Discussion of quality and safety of pharmacological interventions in clinical practice, with emphasis on collaborative teamwork (i.e. nurses, physicians, pharmacists) and evidence-based practice (e.g. current guidelines). Letter grading.

**229A. System-Based Healthcare I (1)** Seminar, two hours. System-based healthcare where students focus on context of medical decision making, including team, hospital, culture, politics, economics, law, and personal bias. Topics include legal, political, and moral aspects of sexual assault and abortion; economics and cultural considerations involved in end of life decision making; and public and personal interpretation of what constitutes conflict of interest. Consideration of how medical decisions are influenced by context of care (system-based practice) and emotional responses and preferences (professionalism). S/U grading.

**229B. System-Based Healthcare II (1)** Seminar, two hours. System-based healthcare where students focus on context of medical decision making, including team, hospital, culture, politics, economics, law, and personal bias. Topics include legal, political, and moral aspects of sexual assault and abortion; economics and cultural considerations involved in end of life decision making; and public and personal interpretation of what constitutes conflict of interest. Consideration of how medical decisions are influenced by context of care (system-based practice) and emotional responses and preferences (professionalism). S/U grading.

**229C. System-Based Healthcare III (1)** Seminar, two hours. System-based healthcare where students focus on context of medical decision making, including team, hospital, culture, politics, economics, law, and personal bias. Topics include legal, political, and moral aspects of sexual assault and abortion; economics and cultural considerations involved in end of life decision making; and public and personal interpretation of what constitutes conflict of interest. Consideration of how medical decisions are influenced by context of care (system-based practice) and emotional responses and preferences (professionalism). S/U grading.

**230A. Advanced Pathophysiology I (3)** Lecture, three hours. Requisites: courses 3, 13, or equivalent taken within last three years. Course 230A is requisite to 230B. In-depth examination of general pathophysiological processes that underlie human illness and disease across all body systems including cellular adaptation, fluid and electrolyte balance, acid-base balance, immunity, inflammation, infection, wound healing, genetics, neoplasms, temperature regulation, somatosensory and pain processing, stress and disease, and activity and fatigue regulation. Detailed study and analysis of manifestations of, and responses to, processes of cellular and molecular pathology at extra-cellular, system and human levels. Letter grading.

**230B. Advanced Pathophysiology II (2)** Lecture, two hours. Requisite: course 230A. In-depth examination of pathophysiological processes that underlie human illness and disease, with detailed study of these in major body systems. Examination of manifestations of, and responses to, processes of cellular and molecular pathology at cellular, tissue, system, and human levels. Letter grading.

**231. Advanced Pathophysiology for Advanced Practice Registered Nurses (4)** Lecture, four hours. In-depth examination of pathophysiological processes that underlie human illness and disease, with detailed study of these in major body systems. Analysis of manifestations of, and responses to, processes of cellular and molecular pathology at extracellular, system, and human levels with implications for advanced practice registered nursing. Letter grading.

**232. Human Responses to Aging and Chronic Illness (2, 4)** Lecture/discussion, four hours. Pathophysiologic concepts and nursing management of older adults who are healthy or who have disability and/or chronic illness. Nursing aspects of selected dysfunctions and implications for advanced practice in gerontological nursing. Letter grading.

**233. Human Responses to Aging and Chronic Illness (2, 4)** Lecture/discussion, four hours. Biopsychosocial concepts and nursing management of healthy, disabled, and/or chronically ill older adults, addressing pathophysiological aspects of common health problems. Implications for advanced practice in gerontological nursing. Letter grading.

**236. Pediatric Primary Care for Family Nurse Practitioners (4)** Lecture, four hours. Requisite: course 200. Preparation of family nurse practitioners to assume responsibility for health promotion and illness prevention, and maintenance and management of common developmental, behavioral, acute, and chronic health problems of infants, children, and adolescents in primary healthcare settings. Presentation of condition or disease, etiology and incidence, clinical findings, differential diagnosis, pharmacologic and treatment management, complications, and preventive and patient education measures. Examination of primary child health delivery model reliant on evidence-based knowledge, practice protocols, consultation, referral, and community resources. Letter grading.

**237A. Assessment and Management in Pediatric Acute Care I (3)** Lecture, three hours. Requisites: courses 238A, 238B. Corequisite: course 437A. First course in two-course sequence for acute care pediatric nurse practitioner student. Focus on pathophysiology of specific disease processes, pharmacologic knowledge, clinical decision-making, and treatment modalities in managing complex acute, critical, and chronic health conditions in infants, children, and adolescents. Cultural sensitivity, child development, family support, ethical issues, and palliative care/end of life care integrated into select acute/chronic conditions. Lectures and other learning activities demonstrate application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

**237B. Assessment and Management in Pediatric Acute Care II (3)** Lecture, three hours. Requisites: courses 238A, 238B, 237A, 437A. Corequisite: course 437B. Second course in two-course sequence for acute care pediatric nurse practitioner student. Focus on pathophysiology of specific disease processes, pharmacologic knowledge, clinical decision-making, and treatment modalities in managing complex acute, critical, and chronic health conditions in infants, children, and adolescents. Cultural sensitivity, child development, family support, ethical issues, and palliative care/end of life care integrated into select acute/chronic conditions. Lectures and other learning activities demonstrate application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

**238A. Assessment and Management in Pediatric Primary Care (4)** Lecture, four hours. Requisite: course 200. Anticipatory guidance for children and families to promote child wellness and assessment, diagnosis, and management of common pediatric illnesses. Demonstration of application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

**238B. Assessment and Management in Pediatric Chronic Care (4)** Lecture, four hours. Requisite: course 238A. Assessment, diagnosis, and management of common pediatric illnesses. Demonstration of application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

**239A. Adult/Gerontology Primary Healthcare for Advanced Practice Registered Nurses I (4)** Lecture, four hours. Requisites: courses 200, 224, 231. Course 239A is requisite to 239B, which is requisite to 239C. Assessment, diagnosis, and management of common episodic and chronic adult health problems and conditions, including urgent care, for family and adult/gerontology primary care nurse practitioners. Application and evaluation of evidence-based interventions and clinical guidelines in diverse adult populations (late adolescence through old age). Analysis of health promotion, maintenance, and restoration approaches in special populations, including developmental, cultural, gender, life-stage perspectives, and functional impairment. Letter grading.

**239B. Adult/Gerontology Primary Healthcare for Advanced Practice Registered Nurses II (4)** Lecture, four hours. Requisite: course 239A. Assessment, diagnosis, and management of common episodic and chronic adult health problems and conditions, including urgent care, for family and adult/geron-

tology primary care nurse practitioners. Application and evaluation of evidence-based interventions and clinical guidelines in diverse adult populations (late adolescence through old age). Analysis of health promotion, maintenance, and restoration approaches in special populations, including developmental, cultural, gender, life-stage perspectives, and functional impairment. Letter grading.

**239C. Adult/Gerontology Primary Healthcare for Advanced Practice Registered Nurses III (4)** Lecture, four hours. Requisite: course 239B. Assessment, diagnosis, and management of common episodic and chronic adult health problems and conditions, including urgent care, for family and adult/gerontology primary care nurse practitioners. Application and evaluation of evidence-based interventions and clinical guidelines in diverse adult populations (late adolescence through old age). Analysis of health promotion, maintenance, and restoration approaches in special populations, including developmental, cultural, gender, life-stage perspectives, and functional impairment. Letter grading.

**242F. Biobehavioral Foundations of Neuropsychiatric Nursing Care (4)** Lecture, four hours. Biologic and behavioral research from variety of disciplines, including nursing, for application to treatment of neuropsychiatric dysfunction. Exploration of research underlying treatment interaction in cognitive, addictive, and affective dysfunctions, with emphasis on developing a biobehavioral nursing approach. Letter grading.

**245. Theoretical Foundations of Clinical Nurse Specialist Practice (4)** Lecture/discussion, four hours. Theoretical foundations of clinical nurse specialist practice, including systems theory, behavioral theories, consultation theory, change theory, and models of research utilization. Emphasis on application of relevant theories to clinical nurse specialty practice roles in healthcare systems through case-study analysis, with focus on application to clinical practice settings which include culturally diverse populations. Letter grading.

**249. Meeting Health-Related Needs in Underserved Populations (4)** Lecture, four hours. Examination of systematic barriers within healthcare settings that limit access to those in greatest need of culturally appropriate interventions. Unmet healthcare needs often result in health disparities and compromised quality of life among underserved, low income, uninsured, marginalized populations. Analysis of current evidence-based strategies and interventions designed to address these clinical problems and improve outcomes in culturally competent manner. Presentation of context of healthcare financing, limited access, and public policy. Letter grading.

**250. Ethical Issues, Social Justice, and History of Nursing (5)** Lecture, five hours. Interplay of social, economic, cultural, legal, and political forces in the U.S. form background for study of ethical issues related to role of nurses as advocates for social justice and safe, effective, high-quality patient-centered care in contemporary society today. Analysis situated within context of history of nursing, with emphasis on human rights, civil rights, and patient rights. Discussion of evolution of professional nursing within healthcare arenas in relation to ethical principles, cultural competence, evidence-based practice, and human diversity. Letter grading.

**C255. Global Health Elective: Globalization, Social Justice, and Human Rights (3)** Seminar, two hours. Exploration of theories, issues, debates, and pedagogy associated with globalization, social justice, and human rights and how these perspectives influence human health and well-being. Provides students with unique opportunity to explore these topics within classroom, via Internet and other technologies, and in other classrooms located around globe. Students, through collaborative projects with peers around world, reflect on how globalization shapes and transforms local communities and national cultures. Concurrently scheduled with course C155. Letter grading.

**260. Secondary Prevention (4)** Lecture, four hours. Requisites: courses 252A, 252B. Review of theory and evidence-based secondary prevention screening strategies for early detection of disease to reduce morbidity and mortality across lifespan and to develop nursing care interventions. Use of integrated conceptual frameworks addressing individual, family, community, health care systems factors, social environmental systems, and policies to identify factors influencing screening and resulting health disparities in order to adapt plans for care. Nursing interventions for promoting screening address barriers and facilitators, controversies, as well as utilize existing strengths and supportive mechanisms tailored to populations. Discussion and application of specific micro-level factors including screening for physical health and mental health disorders along with associated behavioral factors and macro-level, built environment influences. Letter grading.

**264. Professional Role Issues in Advanced Practice Registered Nursing (3)** Lecture, three hours. Requisite: course 418A or 438A or 439A. Assessment of organizational, legal, ethical, and healthcare policy issues in relation to delivery of healthcare services by advanced practice registered nurses in evolving healthcare system. Letter grading.

**267. Health Care Policy (3)** Lecture, three hours. Requisites: for MECN students, courses 266, 268, 269; for dual NP/CNS students, courses 245, 269, 445. Analysis of health care policies and how policies impact patient outcomes, clinical practice, health care delivery, and clinician well-being. Concepts related to policy making, formulating health care policy, how to affect political processes, and stakeholder involvement in policy decision making and implementation. Development of understanding of increasing levels of public, governmental, and third party participation in and scrutiny of health care system. Discussion of assembly bills effect on nursing. Emphasis on clinical nurse leader role in health policy and advocacy. Satisfies course requirement for CNL certification. Letter grading.

**268. Leadership in Health Care Systems (4)** Lecture, four hours. Requisites: courses 250, 465A, 465B. Discussion of use of systems theory in providing patient-centered value-added care. Health care practitioners learn to use critical thinking and decision making to coordinate and deliver quality, cost-effective patient care. Discussion of different modes of organizing nursing care within micro-, meso-, and macro-levels of health care systems; managing care within multidisciplinary team framework; and promoting effective teamwork that enhances patient outcomes, improves staff efficiency, and reduces costs. Emphasis on system theory, problem solving and decision making, nursing care delivery models, delegation, and team strategies in relation to clinical nurse leader. Satisfies course requirement for CNL certification. Letter grading.

**269. Quality Improvement and Population-Based Quality of Practice (4)** Lecture, four hours. Requisites: courses 268, 465A, 465B, 465C. Focus on principal elements related to quality improvement theories and ways in which quality management impacts delivery of patient-centered and value-driven care. Discussion of concepts including improving system performance, efficient use of fiscal resources, quality improvement, and patient-population quality practice at organizational level. Review of methods to improve patient-care outcomes such as organizational support, effective teamwork, and quality improvement. Emphasis on quality management, patient safety, mitigating chances of adverse outcomes, evidence-based practice, cost-effective decision making, resource management, and external impacts on quality control. Satisfies course requirement for CNL certification. Letter grading.

**288. Variable Topics in Nursing (4)** Lecture, three hours; discussion, one hour. Variable topics; consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit. S/U or letter grading.

**291A. Applied Statistics and Analytics for Health Sciences Research I (4)** Lecture, three hours; laboratory, one hour. Requisite: doctoral standing or consent of instructor, introductory statistics course. Introduction to applied statistics. Students gain skills to understand, conduct analyses, and interpret results of analyses to answer simple comparative and relationship research questions relevant to health science research. Topics include statistical inference and probability, distributions, effect size, analyses for description, data visualization, parametric and nonparametric tests for simple comparisons and relationships, and research database design and management. Students conduct analyses with statistical software and interpret results from their analyses and from research reports in literature. Letter grading.

**291B. Applied Statistics and Analytics for Health Sciences Research II (4)** Lecture, three hours; discussion, one hour. Requisites: course 291A, doctoral standing, or consent of instructor. Focus on linear statistical models and other analytic techniques to examine complex relationships and comparisons. Approach primarily from applications and interpretation perspective. Students evaluate statistical/analytical results from research literature, analyze data using quantitative multivariate techniques, and interpret results. Introduction of concepts and interpretation of broad range of multivariate statistical and analytical approaches, including regression (linear and logistic regression and survival models), factor analysis, multi-factor and repeated measures analysis of variance, mixed effects models, machine-learning analytic techniques for big data, and other selected approaches. Students utilize several of approaches to analyze research data. Letter grading.

**291C. Special Topics in Applied Statistics and Analytics for Health Sciences Research III (4)** Lecture, three hours; discussion, one hour. Requisites: course 291B, doctoral standing, or consent of instructor. Focus on statistical models and analytic techniques to examine complex relationships and comparisons. Approach primarily from applications and interpretation perspective. Students evaluate analytical results from research literature, and analyze data and interpret results using selected quantitative approaches. Introduction of concepts and interpretation of results from selected quantitative approaches that can address complex nursing and other health sciences research questions. Approaches to be studied include selected topics from mediation models, interactions and effect modification, structural equation models, mixed effects regression models for longitudinal or multilevel data, secondary analysis, weighted survey data, meta analysis, genomic statistics, artificial intelligence/machine learning approaches for big data. Letter grading.

**295A. Grant Writing I: Scientific Proposal Development (3)** Seminar, three hours. Requisites: courses 202, 205A, 206A, 210A, 210B, Biostatistics 100B. Introduction to grant writing, with focus on preparing application for National Student Research Award (NRSA) or similar award. Discussion of requirements of various extramural and specialty organization funding sources and identification of evaluation criteria. Emphasis on role of external funding to facilitate doctoral and postdoctoral research, research activities, and professional development. Letter grading.

**295B. Grant Writing II: Scientific Proposal Development (4)** Seminar, four hours. Requisites: courses 202, 205A, 206A, 210A, 210B, 295A, Biostatistics 100B. Designed to develop proposals to request for proposals (RFPs) from federal or state level and non-profit organizations. Incorporation of requirements of various extramural and specialty organizations, intramural funding sources, and evaluation criteria in grant writing. Emphasis of role of external funding to facilitate doctoral and post-doctoral research, research activities, and professional development. Letter grading.

**295C. Nursing Science Seminar (2)** Seminar, two hours. Requisite: course 295A. Introduction to grant writing, with focus on preparing applications for National Student Research Award. Discussion of requirements of various extramural and specialty organization funding sources, and evaluation criteria identified. Role of external funding to facilitate doctoral and postdoctoral research, research activities, and professional development. S/U grading.

**298. Interdisciplinary Response to Infectious Disease Emergencies: Nursing Perspective (4)** (Same as Community Health Sciences M256, Medicine M256, and Oral Biology M256.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Public Health during weeks two through five. Letter grading.

**299A. Ethical Conduct in Research (2)** Seminar, two hours. Examination of historical and current issues of ethical integrity at each stage of research process in relation to conflicts of interest, data sharing, responsible authorship, data management, and handling of misconduct in research with both human and animal subjects. Systematic instruction on ethical and responsible conduct of research and protection of research subjects as students create their own application for research. Letter grading.

**299B. Nursing Research Mentorship (1)** Seminar/discussion, one hour; research/laboratory, three hours. Requisites: courses 202, 205A, 206A, 206B, 207, 208, 210A, 210B, 295A, Biostatistics 100A, 210A. Special topics course for doctoral students who have completed required coursework and are preparing to advance to doctoral candidacy. Discussion topics range from identifying areas of research/laboratory experiences, and engagement in planning for and evaluation of students' mentored experiences on weekly basis. Letter grading.

**299C. Nursing Research/Laboratory Experiences (4)** Seminar/discussion, one hour; research/laboratory, three hours. Requisites: courses 202, 206. Seminars and research/laboratory-based experiences to assist students to prepare for careers as scientists, with focus on research methodology and mentorship. S/U grading.

**299D. Nursing Education Seminar (2)** Seminar, two hours; discussion, one to two hours. Seminar to assist students to prepare for careers in academic settings, with focus on teaching. S/U grading.

**401. Scientific Underpinnings for DNP Practice (3)** Lecture/seminar, three hours. Requisite: doctoral standing. Develops critical thinking skills of DNP students in evaluating state of nursing science and its impact on advanced nursing practice at doctoral level. Introduction and exploration of role of DNP in broader health care environment and correlation to advanced practice nursing roles. Discussion of scientific theories and conceptual frameworks forming foundations of knowledge and clinical scholarship in doctoral nursing practice. Theoretical concepts and strategies that integrate practice inquiry into various roles of advanced practice nurse incorporated throughout course. Emphasis placed on professional writing competencies as related to scientific underpinnings for DNP practice. Letter grading.

**402. Clinical Scholarship for Evidence-Based Practice (3)** Lecture/seminar, three hours. Requisite: doctoral standing. Designed to provide DNP students with skills to critically appraise and translate evidence into practice. Evidence-based practice appraisal frameworks are used to promote understanding of scientific information and support critical decision-making in health care. Students learn to formulate clinically relevant focused question(s) that guide their DNP project proposal. Letter grading.

**403. Organizational and Systems Leadership for Quality Improvement (3)**

Lecture/seminar, three hours. Requisite: doctoral standing. Provides interdisciplinary background in sciences of quality improvement and patient safety within health care settings. Addresses history and evolution of quality movement, theories and thought leaders, current quality of care issues, eliminating health disparities, culturally and linguistically appropriate services, research and innovations, intervention strategies, and instruments, as well as analysis of quality management system models in health care. Evaluation of principles of change theory, strategic planning, organizational culture, program development and implementation. Special focus placed on role of DNP leader in developing and leading clinical quality and safety initiatives. Letter grading.

**404. Analytical Methods for Evidence-Based Practice (3)** Lecture/seminar, three hours. Requisite: doctoral standing. Advanced concepts on research methods and measurement strategies that are applicable to support advanced practice nurse to access, evaluate, and utilize data from various sources including research, quality improvement initiatives, and information technology origins to achieve improvements in care delivery and practice. Letter grading.

**405. Communication and Ethics for DNP Practice (2)** Seminar, two hours. Requisite: doctoral standing. Introduction to organizational leadership and ethics in context of interdisciplinary practice in complex health care systems. Letter grading.

**406. Clinical Prevention and Population Health (3)** Lecture/seminar, three hours. Requisite: doctoral standing. Enables DNP students to integrate, synthesize, and apply key concepts introduced in previous coursework in order to incorporate core components into practice. Evidence-based practice, clinical preventive service and health promotion, health systems and policy, and population health and community aspects of practice are emphasized through focus on current health issues. Letter grading.

**407. Financial Management and Cost Analysis of Health Care (3)** Lecture/seminar, three hours. Requisite: doctoral standing. Designed to expose DNP students to foundational understanding of how health care is financed in U.S. Exploration of various types of health care organizations and delivery systems. Health care finance is discussed at national, state, and specific health care agencies. Letter grading.

**408. Interprofessional Collaboration for Improving Patient and Population Health Outcomes (3)** Lecture/seminar, three hours. Requisite: doctoral standing. Designed to acquaint DNP students with contemporary issues in health care professions and expose students to interprofessional collaborative practice concepts and competencies. Debate of barriers and facilitators to achieving model collaborative practice. Exploration of innovative opportunities to change current practice. Exploration of students' personal belief systems about high-level collaboration and team performance. Addresses relationship between interprofessional education, practice, and health care outcomes and processes to prepare DNP graduate to assume leadership roles. Letter grading.

**409. Health Care Policy for Advocacy in Health Care (3)** Seminar, three hours. Requisite: doctoral standing. Prepares students to become engaged and committed to leadership role in health policy. Students gain principles, skills, and knowledge to advocate for patients, profession, and health care systems gained through analysis of existing policies, programs, and guidelines that govern health care services and practice. Within ethical framework, discussion of issues of equity, health disparities, access to care, and quality of care. Through development of policy brief, students recognize role of political activism as it relates to DNP practice. Letter grading.

**410. Dissemination and Translation of Clinical Scholarship (2)** Lecture/seminar, two hours. Requisite: doctoral standing. Students develop DNP competency through presentation of their DNP scholarly project, self-reflection through career plan, and critical evaluation of their DNP program. Letter grading.

**411. Information Technology for Nursing Practice (2)** Lecture, two hours. Requisite: doctoral standing. Prepares students to obtain knowledge and skills related to information technology and patient care technology. Prepares DNP graduates to apply new knowledge, manage individual and aggregate information, and assess efficacy of patient care technology appropriate to specialized area of practice. Allows students to use information technology/system resources to implement quality improvement initiatives, support practice administrative decision-making. Students gain ability to demonstrate conceptual and technical skills to develop and execute evaluation plan involving data extraction from practice systems and databases. Letter grading.

**416A. Adult/Gerontology Acute Care Nurse Practitioner Practicum I (2)** Clinic practicum, six hours. Enforced requisite: course 440. Course 416A is enforced requisite to 416B. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Develop-

mental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 40 direct clinical hours. Letter grading.

**416B. Adult/Gerontology Acute Care Nurse Practitioner Practicum II (6)** Clinic practicum, 16 hours. Enforced requisite: course 416A. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 160 direct clinical hours. Letter grading.

**416C. Adult/Gerontology Acute Care Nurse Practitioner Practicum III (6)** Clinic practicum, 16 hours. Enforced requisite: course 416B. Course 416C is enforced requisite to 416D. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 160 direct clinical hours. Letter grading.

**416D. Adult/Gerontology Acute Care Nurse Practitioner Practicum IV (6)** Clinic practicum, 16 hours. Enforced requisite: course 416C. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 160 direct clinical hours. Letter grading.

**416E. Adult/Gerontology Acute Care Nurse Practitioner Practicum V. (6 to 8)** Clinic practicum, 15 to 24 hours. Enforced requisite: course 416D. Assessment and therapeutic interventions for selected health problems in acute adult/gerontology populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 160 to 240 direct clinical hours. Letter grading.

**429A. Family Nurse Practitioner Practicum I (4)** Clinic practicum, 12 hours. Requisites: courses 200, 440. First of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, developmental transitions, and health problems. Emphasis on health promotion, maintenance, and risk reduction interventions across wide range of diverse populations. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 80 direct clinical hours. Letter grading.

**429B. Family Nurse Practitioner Practicum II (4)** Clinic practicum, 12 hours. Requisite: course 429A. Second of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Emphasis on health promotion, maintenance, and risk reduction interventions across wide range of diverse populations. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 80 direct clinical hours. Letter grading.

**429C. Family Nurse Practitioner Practicum III (6)** Clinic practicum, 18 hours. Requisite: course 429B. Third of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 160 direct clinical hours. Letter grading.

**429D. Family Nurse Practitioner Practicum IV (6)** Clinic practicum, 18 hours. Requisite: course 429C. Fourth of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 160 direct clinical hours. Letter grading.



**429E. Family Nurse Practitioner Practicum V (9)** Clinic practicum, 27 hours. Requisite: course 429D. Fifth of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 240 direct clinical hours. Letter grading.

**437A. Acute Care Pediatric Nurse Practitioner Clinical Practicum I (6)** Clinic practicum, 18 hours. Requisites: courses 238A, 238B, 438A, 438B. Corequisite: course 237A. Offers clinical opportunity to apply advanced knowledge of pathophysiology, pharmacology, current research, and diagnostic skills in caring for infants, children, and adolescents with complex acute, critical or chronic health conditions. Emphasis on integration of acute care pediatric nurse practitioner role in implementation of comprehensive management plan for children with complex acute, critical or chronic health conditions under supervision of faculty and preceptors. Letter grading.

**437B. Acute Care Pediatric Nurse Practitioner Clinical Practicum II (8)** Clinic practicum, 26 hours. Requisites: courses 237A, 437A, 441. Corequisite: course 237B. Offers clinical opportunity to apply advanced knowledge of pathophysiology, pharmacology, current research, and diagnostic skills in caring for infants, children, and adolescents with complex acute, critical or chronic health conditions. Emphasis on integration of acute care pediatric nurse practitioner role in implementation of comprehensive management plan for children with complex acute, critical or chronic health conditions under supervision of faculty and preceptors. Letter grading.

**437C. Acute Care Pediatric Nurse Practitioner Clinical Practicum III (8)** Clinic practicum, 26 hours. Requisites: courses 237A, 237B, 437A, 437B, 441. Offers clinical opportunity to apply advanced knowledge of pathophysiology, pharmacology, current research, and diagnostic skills in caring for infants, children, and adolescents with complex acute, critical or chronic health conditions. Emphasis on student assuming primary responsibility for assessment, diagnosis, management, and evaluation of care provided to children and families in acute-care setting under supervision of faculty and preceptors. Students complete minimum of 220 direct clinical hours. Letter grading.

**438A. Primary Care Pediatric Nurse Practitioner Clinical Practicum I. (3 to 4)** Clinic practicum, 10 to 12 hours. Corequisite: course 238A. Comprehensive assessment and anticipatory guidance for children and families to promote child wellness. Clinical practicum, seminar, and other learning activities to demonstrate application and evaluation of evidence-based research and clinical guidelines in promotion of pediatric wellness. Students complete minimum of 100 direct clinical hours. Letter grading.

**438B. Primary Care Pediatric Nurse Practitioner Clinical Practicum II. (3 to 6)** Clinic practicum, 10 to 18 hours. Corequisite: course 238B. Second course in three clinical practicum sequence with emphasis on advanced comprehensive assessment, diagnosis, and management of common pediatric illnesses and developmental and/or behavioral problems. Clinical practicum, seminar, and other learning activities demonstrate application and evaluation of evidence-based research and clinical guidelines in common pediatric illnesses. Letter grading.

**438C. Primary Care Pediatric Nurse Practitioner Clinical Practicum III. (6 to 10)** Clinic practicum, 20 to 32 hours. Corequisite: course 238C. Third course in three clinical practicum sequence with emphasis on advanced comprehensive assessment, diagnosis, and management of chronic and acute pediatric illnesses in ambulatory setting. Clinical practicum, seminar, and other learning activities demonstrate application and evaluation of evidence-based research and clinical guidelines in pediatric chronic and acute illnesses. Letter grading.

**439A. Adult/Gerontology Primary Care Nurse Practitioner Practicum I (4)** Clinic practicum, 12 hours. Requisites: courses 224, 231. Corequisite: course 239A. Advanced practice nursing in adult/gerontology. Beginning-level assessment and therapeutic interventions for health problems in selected populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Students complete minimum of 80 direct clinical hours. Letter grading.

**439B. Adult/Gerontology Primary Care Nurse Practitioner Practicum II (6)** Clinic practicum, 18 hours. Requisite: course 439A. Corequisite: course 239B. Continuation of course 439A for advanced practice nurses, with emphasis on nursing management of acute and chronic health problems in selected populations. Developmental needs of clients in relation to family, social, and cultural structures. Students complete minimum of 80 direct clinical hours. Letter grading.

**439C. Adult/Gerontology Primary Care Nurse Practitioner Practicum III (6)** Clinic practicum, 18 hours. Requisite: course 439B. Corequisite: course 239C. Third clinical practicum course for advanced practice nurses, with focus on nursing assessment and intervention in common illness-associated symptoms and complex patient/family presentations. Analysis, evaluation, and integration of current theory and research to provide basis for development of interventions and treatment for acute and chronic problems across lifespan. Students complete minimum of 160 direct clinical hours. Letter grading.

**439D. Adult/Gerontology Primary Care Nurse Practitioner Practicum IV (6)** Clinic practicum, 18 hours. Requisites: courses 239C, 439C. Residency in advanced practice role where students assume primary responsibility for planning, managing, and evaluating care of clients in specialty setting. Emphasis on application and integration of theory, research, and clinical knowledge in advanced practice role. Students complete minimum of 160 direct clinical hours. Letter grading.

**439E. Adult/Gerontology Primary Care Nurse Practitioner Practicum V (9)** Clinic practicum, 27 hours. Enforced requisites: courses 439A through 439D. Designed to prepare adult/gerontology primary care nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare providers for young adults, adults, and older adults. Use of patient-centered framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments, with emphasis on context of community, cultural awareness, and practice in interdisciplinary teams. Students complete minimum of 240 direct clinical hours. Letter grading.

**440. Advanced Assessment and Clinical Diagnosis for Advanced Practice Nurses (2)** Laboratory/clinic practicum, six hours. Practice foundations for advanced physical assessment and clinical diagnostic reasoning. Students conduct individualized patient- and symptom-focused assessments of health problems representative of diverse client populations. Emphasis on comprehensive and integrated critical analysis of symptom and focused history data, physical examination, selected laboratory data, and clinical diagnoses. Letter grading.

**441. Advanced Pediatric Diagnostics (3)** Lecture/laboratory, three hours. Requisite: course 440. Designed for acute-care pediatric nurse practitioner students. Advanced diagnostic reasoning and skills in management of infants, children, and adolescents with complex acute, critical, and chronic health conditions. Focus on expanding knowledge of pediatric assessment and management of selected health conditions to aspects of diagnostic tests, test interpretation, and invasive procedures to stabilize or monitor acute, critical, or chronic pediatric patient. Lectures and other learning activities demonstrate application and evaluation of evidence-based research and clinical guidelines in pediatric population. Letter grading.

**444. Adult/Gerontology Acute Advanced Assessment and Clinical Diagnosis II (2)** Clinic practicum, six hours. Enforced requisite: course 440. Practice foundations for advanced physical assessment and clinical diagnostic reasoning, with focus on diagnostic or therapeutic procedures and related indications, complications, and follow-up care in laboratory setting. S/U grading.

**445. Advanced Practice Registered Nursing: Clinical Nurse Specialist Practicum. (2 to 10)** Clinic practicum, six to 30 hours. Requisites: courses 220, 245. Practicum/residency where students gain skills and competencies to function collaboratively and autonomously to achieve high quality patient outcomes. Clinical nurse specialty (CNS) practice achieves this by working within three spheres of influence: patient/family, nursing personnel, and organizational systems utilizing multidisciplinary approach through application and integration of theory, research, and clinical knowledge. 17 units complete minimum of 500 unique CNS hours required for professional certification. Letter grading.

**450. Advanced Practice Registered Nursing: Clinical Elective Independent Study. (2 to 8)** Clinic practicum, eight hours. Clinical elective designed to enhance skills and competencies in student-selected advanced practice specialty or related practice dimension, with emphasis on application and integration of theory and evidence-based practice knowledge. S/U grading.

**461. Mental Health Nursing (5)** Lecture, three hours; clinical, six hours. Requisites: courses 252A, 252B, 260, 465B. Knowledge development and skill assessment to promote mental health of individuals and communities. Exploration of research underlying assessment, diagnosis, and treatment of individuals with psychiatric disorders and pharmacotherapeutic and psychological treatment of individuals. Application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Letter grading.

**462. Maternity Nursing (5)** Lecture, three hours; clinical, six hours. Requisites: courses 204, 260, 465A, 465B. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of maternity-newborn patients, with emphasis on social, cultural, and developmental influences and integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of childbearing families. Application of theory, nursing process, evidence-based practice, and problem solving in clinical setting, interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating care for maternity and newborn patients, both as individuals and cohorts. Assessment, health maintenance, and management of symptomatology among childbearing women and newborns. Letter grading.

**463. Nursing Care of Geriatric Patients and Families (3)** Lecture, two hours; clinical, one hour. Requisites: courses 252A, 252B, 465A. Addresses prevention and management of acute and chronic health problems of older adults. Theory content emphasizes assessment, goal setting, treatment planning, and evaluation of nursing care of older adults and their families with emphasis on psychosocial, cultural, and developmental influences. Students integrate knowledge of pathophysiology, pharmacology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of older adult patients and their families. Emphasis on concept of nurse as nurse scientist with critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidenced-based practice, and clinical thinking that maximize patient safety and quality care for older adults are employed during clinical experiences. Letter grading.

**464. Pediatric Nursing (5)** Lecture, three hours; clinical, six hours. Requisites: courses 204, 260, 465A, 465B. Nursing assessment and management of acute, chronic, critical, and emergent illnesses in pediatrics with emphasis on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, family-centered care, and ethical and legal principles as applied to pediatrics. Students demonstrate leadership, evidence-based practice, problem-solving, and critical thinking strategies to improve patient safety, care quality, and health outcomes. Supervised practicum experience within setting of multidimensional team in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating nursing care in pediatrics. Effective communication, teamwork, and collaboration with disciplines across complex health care systems. Integration of information management and technology to facilitate effective communication and support clinical decision making. Letter grading.

**465A. Foundational Concepts for Tertiary Prevention and Care of Medical-Surgical Patients and Families (4)** Lecture, three hours; clinical, three hours. Requisites: courses 174A, 230A, 250, 254A. Examination of nursing assessment and management of common health problems of adults. Theory content in basic assessment, health history, and diagnostic reasoning for selected health problems, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, stress and adaptation, adult development theory, therapeutic interventions, and communication concepts as applied to care of medical and surgical patients and their families across adult lifespan. Introduction to concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care employed during clinical experiences. Letter grading.

**465B. Tertiary Prevention and Care of Medical-Surgical Patients and Families (6)** Lecture, four hours; clinical, six hours. Requisites: courses 225A, 230A, 230B, 252A, 252B, 254B, 465A. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of adult patients with complex illness including multifaceted assessment, health history, and diagnostic reasoning skills, and emphasis on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, patient safety, evidence-based practice, and communication concepts as applied to care of medical-surgical patients. Supervised practicum experience within settings of multidisciplinary teams directing care of medical-surgical clinical units, with focus on clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Letter grading.

**465C. Tertiary Prevention and Care of Complex Medical-Surgical Patients and Families (8)** Lecture, four hours; clinical, 12 hours. Requisites: courses 204, 260, 465B. Examination of nursing assessment and management of acute and chronic health problems of acutely ill adults. Theory content in assessment, health history, and diagnostic reasoning with emphasis on social, cultural, and developmental influences. Integration of knowledge of pathophysiology, pharmacology, stress and adaptation, adult development theory, therapeutic interventions, patient safety, evidence-based practice, and communication concepts as applied to care of medical-surgical patients. Supervised practicum experience within clinical setting as part of interdisciplinary health care team, with focus on application of theory in clinical setting and interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. S/U grading.

peutic interventions, patient safety, evidence-based practice, and communication concepts as applied to care of acutely ill medical-surgical patients, with complex and comorbid conditions, and their families. Concept of nurses as bedside scientists, with emphasis on critical and contextual thinking skills and diagnostic reasoning. Nursing process, ethical principles, clinical research, evidence-based practice, and clinical thinking that maximize patient safety and quality care for acutely ill adults employed during clinical experiences. Letter grading.

**467. Clinical Internship: Integration (12)** Clinical, 36 hours. Requisites: courses 268, 461, 462, 463, 464, 465A, 465B, 465C. Supervised practicum experience within clinical setting as part of interdisciplinary health care team, with focus on application of theory in clinical setting and interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Students design and complete quality improvement project that contributes to unit's goals and objectives. Students implement advanced-level assessment, health maintenance, and management of symptomatology across lifespan. S/U grading.

**470A. DNP Scholarly Project Course I: Project Conceptualization and Planning (2)** Lecture, two hours; clinical, four hours. Requisites: courses 401, 402, 403, 404, 405, 408. Preparation: successful completion of first year of DNP didactic coursework. DNP students gain knowledge, skills, and abilities necessary to develop evidence-based project proposal and plan, which addresses practice issue affecting chosen microsystem. Provides structured didactic content and application of student's DNP scholarly project. Letter grading.

**470B. DNP Scholarly Project Course II: Project Proposal (8)** Lecture, two hours; clinical, six hours. Requisite: course 470A. DNP students develop full DNP scholarly project proposal that reflects synthesis of student's knowledge from prior coursework and work in area of interest or expertise under direction of faculty mentor. Provides structured didactic content and application of student's DNP scholarly project. Letter grading.

**470C. DNP Scholarly Project Course III: Project Implementation (8)** Lecture, two hours; clinical, six hours. Requisite: course 470B. Continued development of knowledge, skills, and abilities to implement chosen DNP scholarly project proposal. Students assume role of leadership in interprofessional collaboration, consultation, and partnership. Students receive direction from faculty committee chair and peer feedback as they become engaged in microsystem where they implement their DNP scholarly project. Provides structured didactic content and application of student's DNP scholarly project. Letter grading.

**470D. DNP Scholarly Project Course IV: Project Evaluation (8)** Lecture, two hours; clinical, six hours. Requisite: course 470C. Students complete evidence-based DNP scholarly project. Students complete implementation phase, evaluate project, and write final DNP scholarly project manuscript. Students receive individual direction from faculty committee chair and peer feedback as final DNP scholarly project paper is written. Students are also mentored in making professional presentations and writing for publication. Letter grading.

**495. Nursing Education Practicum (2)** Seminar, six hours. Supervised student teaching internship in preparation for academic roles. In-depth opportunity to gain skills in role of nurse educator within university setting, including application of instructional strategies and evaluation methods. S/U grading.

**495A. Teaching Assistant Training Seminar (2)** Seminar, 90 minutes. Prepares students to serve as teaching assistants in School of Nursing. Students gain skills in role of nurse educator within university setting, including application of instructional strategies and evaluation methods that are consistent with expectations for student learning, creating inclusive teaching environment, and dealing with difficult situations. All new teaching assistants are required to take series of five Foundations of Teaching workshops by end of quarter in which this course is completed. S/U grading.

**496A. Education Practicum in Nursing Practice I (1)** Activity, one hour; discussion, one hour. Corequisites: courses 401, 402. Focuses on development and implementation of patient education program. Prepares DNP students for teaching roles in variety of different health care settings. Emphasis on application of educational program structure, content, appropriate curriculum development, methods of teaching and evaluation that can be applied in variety of different settings in which DNP advanced practices nurses teach. In progress grading (credit to be given only on completion of courses 496B and 496C).

**496B. Education Practicum in Nursing Practice II (1)** Activity, one hour; discussion, one hour. Requisite: course 496A. Focuses on development and implementation of patient education program. Prepares DNP students for teaching roles in variety of different health care settings. Emphasis on application of educational program structure, content, appropriate curriculum development, methods of teaching and evaluation that can be applied in variety of different settings in which DNP advanced practices nurses teach. In progress grading (credit to be given only on completion of courses 496B and 496C).

velopment, methods of teaching and evaluation that can be applied in variety of different settings in which DNP advanced practices nurses teach. In progress grading (credit to be given only on completion of course 496C).

**496C. Education Practicum in Nursing Practice III (1)** Activity, one hour; discussion, one hour. Prerequisite: course 496B. Focuses on development and implementation of patient education program. Prepares DNP students for teaching roles in variety of different health care settings. Emphasis on application of educational program structure, content, appropriate curriculum development, methods of teaching and evaluation that can be applied in variety of different settings in which DNP advanced practices nurses teach. Letter grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. Opportunity for individual graduate nursing students to pursue special studies or research interests. May be repeated for credit, but only 4 units may be applied toward graduate degree requirements. S/U grading.

**597. Individual Study for Comprehensive Examination (2 to 4)** Tutorial, to be arranged. Opportunity for individual graduate nursing students to prepare for comprehensive examination. May be repeated once for credit, but only 4 units may be applied toward MSN degree requirements. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 12)** Tutorial, to be arranged. Individualized faculty supervision of PhD dissertation research by student's chair. May be repeated for credit, but only 8 units may be applied toward PhD degree requirements. S/U grading.

# Obstetrics and Gynecology

## Obstetrics and Gynecology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Obstetrics and Gynecology (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Ophthalmology

## Ophthalmology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Ophthalmology (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Oral Biology

## Oral Biology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Graduate

**201A. Advanced Oral Biology: Ontogenesis (3)** Lecture, three hours. Evolutionary perspective of cellular development from simple molecules that were formed during first billion years of Earth to development of cells, tissues, and organs of invertebrates and vertebrates. Development of vertebrate feeding apparatus from comparative anatomical and physiological point of view, followed by embryogenesis of orofacial and dental structures of humans. S/U or letter grading.

**201C. Advanced Oral Biology: Pathobiology (3)** Lecture, three hours. Molecular basis for pathogenic processes in tissues of oral cavity. Topics include microbially mediated demineralization of hard tissues, soft tissue infections, carcinogenesis, colonization of mucosal substrates by opportunists, etc. S/U or letter grading.

**202. Salivary Diagnostics: Salivaomics, Saliva-Exosomics, Saliva Liquid Biopsy (2)** Lecture, one hour. Focus on basic, translational, and clinical advancements of saliva and its -omics constituents in oral and systemic health, precision, and personalized medicine. Topics covered by active investigators in field of research. Lectures accompanied by two cutting-edge papers in field to prime student of exciting and emerging fields. Letter grading.

**203. Oral Embryology and Histology (4)** Lecture, four hours. Lectures and laboratory instruction in development and histological structure of facial region and oral and peri-oral organs and tissues. Letter grading.

**204. Mechanisms and Relief of Pain (2)** (Same as Neuroscience M233.) Lecture, two hours. Advanced treatment of neuroanatomical, neurophysiological, and biochemical bases of pain perception. Topics include classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders. Letter grading.

**205A. Methodology in Research Design and Data Analysis (2)** Lecture, two hours. Designed for graduate oral biology students. Integration of didactic lectures in descriptive and inferential statistics and in research design (emphasis on experimental design), presentations of statistical software, and open discussion of specific needs of oral biology students when they design their research. Letter grading.

**205B. Methodology in Evidence-Based Dentistry (2)** Seminar, two hours. Designed for oral biology graduate students. Fundamentals of evidence-based research in dentistry and its implications for practice. Letter grading.

**205C. Advanced Seminar: Comparative Effectiveness and Evidence-Based Research (2)** Seminar, one hour; discussion, one hour. Requisites: courses 205A, 205B (may be taken concurrently). Hands-on experience in process of systematic review, as shared mechanism in comparative effectiveness and evidence-based research. Specialized topics include level and quality of evidence assessments, acceptable sampling analysis, meta-analysis and meta-regression, and Bayesian-derived decision making following utility versus logic model. Students work on examples of their choice and interest in oral biology, medicine, and orthodontics. Letter grading.

**206. Current Topics in Oral Immunology (2)** Lecture, two hours. Preparation: basic immunology. Discussion and analysis of current research dealing with immunological issues related to oral health, including HIV, opportunistic oral infections, periodontal pathology, oral immunopathology, caries immunology, endodontic immunology, etc. Letter grading.

**207. Development and Regeneration of Craniofacial Complex (2)** Lecture, two hours. Focus on cell biology and molecular mechanisms that direct formation of different vertebrate head structures during embryonic development, as well

as their abilities to regenerate in adults. Examination of genetic and signaling regulation of craniofacial patterning, morphogenesis, cell differentiation, evolution, and stem cell-based organ regeneration, through both didactic lectures and critical reading of primary research literature. Letter grading.

**208. Genomics and Proteomics in Oral Biology Research (2)** Lecture, one hour; discussion, one hour. Introduction to fundamentals and technical aspects of genomics and proteomics and analysis of data derived therefrom. Discussion of implications and applications of genomics and proteomics in diagnostic protocols such as salivary diagnostics. Letter grading.

**209. Scientific Ethics (2)** Seminar, two hours. Required course in scientific ethics for graduate students in Oral Biology MS and PhD programs and for NRSA trainees in School of Dentistry. Letter grading.

**211. Biology of Temporomandibular Joint (2)** Lecture, two hours. Anatomy, histology, physiology, and biomechanics of temporomandibular joint (TMJ) and related musculature. Pain mechanisms, sensorimotor integration, and motor mechanisms in TMJ function, and current methods of TMJ imaging. S/U or letter grading.

**212. Proseminar: Oral Biology Research (2)** Seminar, one hour; discussion, one hour. Introductory course for graduate MS students. Guest seminars on topics of research in oral biology (pain pathways, immunology, bone biology, microbiology, cancer, and salivary genomics), followed by discussions led by course chair. Letter grading.

**214. Current Research in Osteoimmunology (2)** Seminar, one hour; discussion, one hour. Exploration of oral bone biology and immunology and how both systems talk to each other. Topics include immune modulation of bone metabolism, osteoblastic niche for hematopoietic progenitors, adult bone marrow stem cell changes, and osteoimmunology in at-risk populations. Letter grading.

**215A. Fundamentals of Immunology (2)** Lecture, two hours. Basic cellular and molecular mechanisms involved in responses mediated by immune effectors, with emphasis on immunopathology involved in autoimmunity, cancer, and immunodeficiency syndromes. Letter grading.

**215B. Current Advanced Research Topics in Immunology (2)** Seminar, one hour; discussion, one hour. Overview of rapidly changing discoveries in very important field of immunology. Directed and student-led discussions of current cutting-edge research developments in immunology. Letter grading.

**220. Integrative Biology and Biomaterials Science in Relation to Dentistry (2)** Lecture, one hour; laboratory, 90 minutes. Introduction to integrative biology and biomaterials science by bringing together diversity of disciplines that complement one another to unravel complexity of biology in biomaterials in relation to dentistry. Integration of bioengineering, materials sciences, cell biology, and dentistry. Fundamentals of materials science in relation to dentistry, stem cell biology, and knowledge necessary to participate in dental and biomedical research, innovation, and product development. Letter grading.

**221. Advanced Dental Materials (2)** Lecture, one hour; laboratory, 90 minutes. Preparation of individuals for academic and research careers in dental materials science or broader area of biomaterials relevant to clinical dental practice. Fundamentals of dental materials and knowledge necessary to participate in research and product development. Introduction to materials science, with focus on major classes of materials used in dentistry, including polymers, metals, and ceramics, and providing up-to-date information on dental materials currently used in clinical dentistry. Letter grading.

**225. Craniofacial Anomalies (2)** Lecture, two hours. Covers the subspecialty of orthodontics craniofacial and special care orthodontics. Topics includes cleft lip and palate, syndromic craniosynostosis and other craniofacial anomalies, craniofacial surgery, nasoalveolar molding, and special care orthodontics. Letter grading.

**226. Craniofacial Growth and Development (2)** Lecture, two hours. Preparation: strong background in histology and embryology. Students acquire, from scientific literature discussed in lecture/seminar format, advanced knowledge of relevant aspects of human biology as they apply to classic and current concepts of principles governing growth and development of craniofacial region. Students required to present seminars on assigned topics that aid their understanding and analysis of course content that has application to their specific and professional fields. Letter grading.

**227. Dental Embryology and Histology (2)** Lecture, two hours. Description and interpretation of important stages in development of orofacial apparatus and histological features of its component tissues. Critique of scientific literature relevant to course content and analysis of current state of knowledge about selected features of orofacial apparatus that are of significance to clinical dental specialists. S/U or letter grading.

**228. Dental Pharmacology and Therapeutics (2)** Lecture, three hours. Survey of pharmacology, with particular emphasis on how drugs interact with dentistry. General principles of drug action and drug effects on autonomic and central nervous systems. S/U or letter grading.

**229A. Culture, Ethnicity, and Health: Implications for Oral Biology and Medicine (2)** Seminar, one hour; discussion, one hour. Examination of sociocultural, biological, and linguistic anthropology to understand factors that influence health and well-being, experience and distribution of illness, prevention and treatment of sickness, healing processes, social relations of therapy management, and cultural importance and utilization of pluralistic medical systems. Theory, perspectives, and methods from clinical medicine, public health, epidemiology, demography, and social sciences. Letter grading.

**229B. Anthropological Perspectives on Global Health: Implications for Oral Biology and Medicine (2)** Seminar, one hour; discussion, one hour. What factors determine health, illness, and disease in global context, including political ecology of infectious diseases, child health issues, women's health and reproductive health, global trade in legal and illegal drugs, demography and health transition, structural adjustment, problems associated with globalization of pharmaceutical industry; antibiotic resistance, and globalization and health equity. Letter grading.

**230A. Introduction to Contemporary Orthodontics: From Science to Application (2)** Seminar, two hours. Preparation: DDS or equivalent degree. Students gain further understanding of orthodontic therapy from a biologic, anatomical, and biomechanical perspective. Topics include craniofacial/orthodontic biology, diagnosis and treatment planning, and the management of malocclusions in children, adolescents, and adults. Letter grading.

**230B. Introduction to Contemporary Orthodontics: Clinical Application (2)** Seminar, one hour. Preparation: DDS or equivalent degree. Students gain further understanding of orthodontic therapy from a biologic, anatomical, and biomechanical perspective. Topics include craniofacial/orthodontic biology, diagnosis and treatment planning, and the management of malocclusions in children, adolescents, and adults. Letter grading.

**234. Seminar: Developmental Neuroendocrineimmunology (2)** Seminar, two hours. Designed for graduate students. Psychological and physiological processes intertwine, and one important aspect of psychoneuroimmunological research is characterization of mechanisms that underlie these interactions. Examination of current literature on neuroimmune interaction from developmental perspective. S/U or letter grading.

**250. Introduction and Review of Periodontics for Residents (2)** Lecture, two hours. Introduction and review of current concepts of periodontology from disease diagnosis, etiology and pathogenesis of periodontal diseases to non-surgical and surgical periodontal therapy. Review of periodontal microbiology, antimicrobials, and antibiotics. Periodontal surgical therapies are reviewed including flap surgery, crown lengthening, osseous resection, and periodontal regeneration. Includes mucogingival surgery. Presentation of dental implants from a periodontal perspective. S/U grading.

**256. Interdisciplinary Response to Infectious Disease Emergencies: Dentistry Perspective (4)** (Same as Community Health Sciences M256, Medicine M256, and Nursing M298.) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Medicine, Nursing, and Public Health during weeks two through five. Letter grading.

**260. Oral Biology Seminar (1)** Seminar, one hour. Discussion of peer-reviewed literature readings in basic sciences related to oral biology. S/U grading.

**265A. Fundamentals of Dental Research I (2)** Lecture, two hours. Limited to dental residency and master's program students. Comprehending, strategizing, and executing research are pivotal facets of post-doctoral education in dentistry. Study establishes a foundational understanding to embark on small-scale studies and/or engage in translational and clinical studies of moderate scale. Lectures showcase ongoing and completed research projects spanning various realms of dental research; planning and designing research across different types and specialties of dentistry; critical review techniques in dental literature; and methodologies and experiments within diverse areas of dental research. S/U grading.

**265B. Fundamentals of Dental Research II (2)** Lecture, two hours. Limited to dental residency and master's program students. Building on foundation laid in course 265A, study delves deeper into essential aspects of conducting, completing, and outputting dental research. Focus on writing compelling titles and introductions for scientific papers, and writing impactful abstracts for scientific papers. Students have opportunity to present and discuss individual research projects, and engage in critical analysis and review of scientific literature. S/U grading.

**273. Research in Clinical Immunology and Lymphology (2)** Lecture, one hour; discussion, one hour. Forum for discussion of cutting-edge topics in immunology and lymphology from clinical perspective. Emphasis on immune surveillance and lymphatic drainage of oral pathologies associated with AIDS and other diseases. Letter grading.

**275. Molecular and Cell Biology for Oral Biology Graduate Students (3)** Lecture, two hours; literature review, one hour. Advanced course on prokaryotic and eukaryotic molecular and cell biology, with emphasis on applications in dental research. Letter grading.

**280. Periodontal Microbiology (2)** Lecture, one hour; discussion, one hour. Offers basic knowledge in microbiology in periodontics. Includes microbiology aspects of periodontics such as Socransky models, viruses, aggressive periodontitis, and necrotizing periodontitis; and how those affect actual treatments. Supports all master's students ability to understand basic knowledge of periodontics in research and clinical sciences. Knowledge gained can be applied to research projects and improve critical thinking ability. Letter grading.

**281. Periodontal Immunology (2)** Lecture, one hour; discussion, one hour. Students gain basic knowledge in immunology in periodontics and implant dentistry. Includes advanced knowledge and evidence-based in immunologic responses in many aspects of periodontics such as chronic and acute inflammation, cytokines/chemokines, and complement system differences of innate and adaptive immune responses. Students gain understanding of basic knowledge of periodontics in research and clinical sciences. Knowledge can be applied to research projects and improve critical thinking ability. Letter grading.

**282. Molecular Biology of Oral Diseases (2)** Lecture, one hour; discussion, one hour. Offers basic knowledge in molecular biology in oral biology. Covers various types of topics in dentistry and periodontics such as autoimmune diseases, wound healing process, osteonecrosis of the jaw, and genetics in periodontics. Students gain understanding of basic knowledge of periodontics in research and clinical sciences from clinical perspective. Knowledge can be applied to research projects and improve critical thinking ability. Letter grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations (4 to 8)** Tutorial, to be arranged. S/U or letter grading.

**598. Thesis Research and Preparation (2 to 8)** Tutorial, to be arranged. S/U grading.

**599. Research for and Preparation of PhD Dissertation (4 to 8)** Tutorial, to be arranged. S/U or letter grading.

# Orthopaedic Surgery

## Orthopaedic Surgery Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Orthopaedic Surgery (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Pathology and Laboratory Medicine

## Pathology and Laboratory Medicine Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**110. Introduction to Cytogenetics (4)** Lecture, one hour; discussion, two hours. Limited to upper-division biology students. Cytogenetics is branch of genetics concerned with study of structure and function of cells, especially chromosomes. Coverage of broad range of topics on both clinical aspects and research in cytogenetics. Studies provide important paradigms to understand structure of chromosomes, mechanisms of chromosome segregation, diseases, and problems created for numerical and structural abnormalities of human chromosomes as well as study of new techniques in molecular cytogenetics, including fluorescence in situ hybridization (FISH), comparative genomic hybridization (CGH), and array CGH to diagnose constitutional syndromes and cancer. Journal club sessions include discussion of two journal articles per meeting (one clinical and one basic/translational). Presentation of at least one journal article and leading of one group discussion required. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Pathology (2 to 4)** Tutorial, 10 hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**207. Gross and Developmental Anatomy for Graduate Students (12)** Lecture/laboratory, three four-hour sessions (16-week semester). Gross anatomy, embryology, and radiological anatomy of human body as taught by lectures, demonstrations, and dissections. Trunk and extremities; head and neck. Letter grading.

**215. Interdepartmental Course: Tropical Medicine (2)** (Same as Medicine M215 and Pediatrics M215.) Lecture, two and one half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

**222. Hematopoiesis: Basic Biology and Clinical Implications (4)** Lecture, three hours; discussion, one hour. Senior undergraduate students considered on case by case basis. In-depth study of concepts and paradigms in hematopoietic development. Mammalian hematopoiesis and normal development, with focus on molecular regulation of cellular development and equal emphasis on conceptual and experimental aspects of knowledge in field. Discussion of important pathological states within hematopoietic system, as well as established and novel avenues for therapy. Topics include hematopoietic stem cells and niche, transcriptional and epigenetic regulation of hematopoiesis, B- and T-lymphocyte development, myeloid, erythroid, and platelet development, immune responses, myeloid and lymphoid neoplasia, and bone marrow transplantation/gene therapy. S/U or letter grading.

**229. Molecular Mechanisms of Host/Pathogen Interaction (4)** (Same as Microbiology M229.) Lecture, two hours; discussion, two hours. Enforced requisites: Molecular Biology 254A through 254D. Molecular mechanisms of microbial interactions with eukaryotic host cells that result in disease or pathogen survival. Topics include pathogenesis of common viruses, bacteria, fungi, and parasites, basis of toxin-mediated cellular damage, and immune suppression of microbial tissue damage. Letter grading.

**237. Cellular and Molecular Basis of Disease (4)** (Same as Biological Chemistry M237.) Lecture, two hours; laboratory, two hours. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Discussion of key issues in disease mechanisms, with emphasis on experiments leading to understanding of these mechanisms. Identification of important questions still remaining unanswered. Letter grading.

**238. Histology and Pathology for Graduate Students (2)** Laboratory, two hours. Designed for UCLA ACCESS or Cellular and Molecular Pathology PhD students. Basic introductory knowledge of normal tissue, pathologic processes, and animal models as observed by light microscopy. Letter grading.

**240. Transplantation Immunology from Benchside to Bedside (4)** Lecture, three hours; laboratory, one hour. Preparation: knowledge of basic immunology. Limited to graduate students. New developments in organ transplantation, updates on basic science of immune mechanisms, integration of basic science principles with clinical practice. Letter grading.

**255. Mapping and Mining Human Genome (3)** (Same as Human Genetics M255.) Lecture, three hours. Basic molecular genetic and cytogenetic techniques of gene mapping. Selected regions of human genomic map scrutinized in detail, particularly gene families and clusters of genes that have remained linked from mouse to human. Discussion of localizations of disease genes. S/U or letter grading.

**256. Seminar: Viral Oncology (2)** Seminar, two hours. Advanced research seminar designed to consider current developments in field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation. S/U or letter grading.

**257. Introduction to Toxicology (4)** (Same as Pharmacology M257.) Requisite: Pharmacology M241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems.

**258. Pathologic Changes in Toxicology (4)** (Same as Pharmacology M258.) Designed to give students experience in learning normal histology of tissues which are major targets of toxin and the range of pathologic changes that occur in these tissues (liver, bladder, lung, kidney, nervous system, and vascular system).

**260. Immunopathology (4)** Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: Microbiology 261. Advanced information for graduate and advanced undergraduate students regarding immune system anatomy, lymphocytic development, acute and chronic inflammation, hypersensitivity, and autoimmunity. Letter grading.

**262. Cytogenetics and Genomics (3)** Lecture, three hours. Comprehensive guide so students gain sufficient knowledge in conventional and state-of-art cytogenetic and genomic principles and techniques and their utility in clinical and research applications. Focus on relationship between various chromosomal and genomic abnormalities in humans as identified by basic and advanced technologies such as fluorescence in situ hybridization (FISH), chromosomal microarray analysis (CMA), and next-generation sequencing (NGS). All aspects of molecular cytogenetics and cytogenomics through didactic teaching sessions, journal clubs, and interactive discussions. S/U or letter grading.

**270. Basic and Clinical Aspects of Developmental Hematology (4)** Lecture, two hours. Graduate- and postgraduate-level course that covers broad range of topics in both basic and clinical aspects of developmental hematology. Pediatric hematologic disorders provide important paradigm to study other developmental systems. Subjects include hematopoiesis, basic stem cell biology, angiogenesis, alternative models to study developmental hematology (zebrafish and Drosophila), basic physiology of normal and abnormal red



cells, platelets, and white cells, leukemogenesis and novel therapeutics to treat leukemia, basic and clinical stem cell transplantation, state-of-the-art methods in developmental hematology (genomics, proteomics, and gene therapy, design of clinical trials, and biomathematical modeling and statistics in developmental hematology. Letter grading.

**272. Stem Cell Biology and Regenerative Medicine (4)** (Same as Molecular, Cell, and Developmental Biology M272.) Lecture, two hours; discussion, two hours. Designed for graduate students. Presentation of current knowledge of embryonic and adult stem cells and factors that regulate their growth and development. Major emphasis on how advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Bioethical and legal issues related to stem cell research. S/U or letter grading.

**280. Clinical Aspects and Molecular Biology of Bone Marrow Failure (4)** Lecture, two hours. Limited to graduate students. Coverage of broad range of topics on both clinical aspects and molecular pathogenesis of bone marrow failure syndromes. Studies provide important paradigms to understand fundamental mechanisms of human disease in addition to normal and abnormal blood cell development. Topics include basic biology and clinical features of aplastic anemia, myelodysplastic syndromes, Diamond Blackfan Anemia, Schwachman Diamond Syndrome, Fanconi Anemia, Dyskeratosis Congenita, Paroxysmal Nocturia Hemoglobinuria, flow cytometry, and research approaches to study bone marrow failure syndromes. Journal club sessions include discussion of two journal articles per meeting—one clinical and one basic/translational. Students present at least one journal article and lead group discussion. S/U or letter grading.

**294. Basic Concepts in Oncology (4)** Lecture, three hours. Fundamental biological, genetic, and molecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer. Letter grading.

**296. Research Topics in Pathology. (1 to 2)** Research group meeting, one to two hours. Limited to departmental graduate students. Advanced study and analysis of current topics in pathology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**298A. Current Research in Disease Mechanisms (2)** Lecture, 90 minutes. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Designed for graduate experimental pathology students. Current research in disease mechanisms, with strong emphasis on experimental approach in pathology. Topics include genetic and metabolic disorders, thyroid disease, immunology, atherosclerosis, infectious diseases, and Alzheimer's disease. S/U or letter grading.

**298B. Current Research in Disease Mechanisms (2)** Lecture, 90 minutes. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Designed for graduate experimental pathology students. Current research in disease mechanisms, with strong emphasis on experimental approach in pathology. Topics include genetic and metabolic disorders, thyroid disease, immunology, atherosclerosis, infectious diseases, and Alzheimer's disease. S/U or letter grading.

**298C. Current Research in Disease Mechanisms (2)** Lecture, 90 minutes. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Designed for graduate experimental pathology students. Current research in disease mechanisms, with strong emphasis on experimental approach in pathology. Topics include genetic and metabolic disorders, thyroid disease, immunology, atherosclerosis, infectious diseases, and Alzheimer's disease. S/U or letter grading.

**298D. Current Research in Disease Mechanisms (2)** Lecture, 90 minutes. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Designed for graduate experimental pathology students. Current research in disease mechanisms, with strong emphasis on experimental approach in pathology. Topics include genetic and metabolic disorders, thyroid disease, immunology, atherosclerosis, infectious diseases, and Alzheimer's disease. S/U or letter grading.

**596. Directed Individual Study or Research (4 to 12)** Tutorial, to be arranged. Individual research with members of the staff or of other departments, the latter for purpose of supplementing programs available in department. S/U grading.

**597. Preparation for Qualifying Examinations. (2 to 8)** Tutorial, to be arranged. Preparation: one year of pathology coursework. Individual study for qualifying examinations. S/U grading.

**599. Preparation of PhD Dissertation. (2 to 12)** Tutorial, to be arranged. Preparation: completion of qualifying examinations and majority of PhD research. Writing and completion of dissertation. S/U grading.

## Pediatrics

### Pediatrics Courses

#### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

#### Upper Division

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Pediatrics (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

#### Graduate

**M215. Interdepartmental Course: Tropical Medicine (2)** (Same as Medicine M215 and Pathology M215.) Lecture, two and one half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

# Philosophy

## Philosophy Courses

### Lower Division

**1. Beginnings of Western Philosophy (5)** Lecture, three hours; discussion, one hour. Origins of Greek cosmology and philosophy, beginnings of systematic thought and scientific investigation concerning such questions as origin and nature of the material world, concept of laws of nature, possibility and extent of knowledge. Concentration on pre-Socratic philosophers, particularly Anaximander, Heraclitus, the Pythagoreans, Parmenides, Empedocles, and Greek atomists, during first two thirds of course and on Socrates and some earlier works of Plato in last few weeks. P/NP or letter grading.

**2. Introduction to Philosophy of Religion (5)** Lecture, four hours; discussion, one hour. Introductory study of such topics as nature and grounds of religious belief, relation between religion and ethics, nature and existence of God, problem of evil, and what can be learned from religious experience. P/NP or letter grading.

**3. Historical Introduction to Philosophy (5)** Lecture, three hours; discussion, two hours. Historical introduction to Western philosophy based on classical texts dealing with major problems, related thematically and studied in chronological order: properties of rational argument, existence of God, problem of knowledge, nature of causality, relation between mind and body, possibility of justice, and others. P/NP or letter grading.

**4. Philosophical Analysis of Contemporary Moral Issues (5)** Lecture, three hours; discussion, one hour. Critical study of principles and arguments advanced in discussion of current moral issues. Possible topics include revolutionary violence, rules of warfare, sexual morality, right of privacy, punishment, nuclear warfare and deterrence, abortion and mercy killing, experimentation with human subjects, rights of women. P/NP or letter grading.

**5. Philosophy in Literature (5)** Lecture, three hours; discussion, one hour. Philosophical inquiry into such themes as freedom, responsibility, guilt, love, self-knowledge and self-deception, death, and meaning of life through examination of great literary works in Western tradition. P/NP or letter grading.

**6. Introduction to Political Philosophy (5)** Lecture, three hours; discussion, one hour. Study of some classical or contemporary works in political philosophy. Questions that may be discussed include What is justice? Why obey the law? Which form of government is best? How much personal freedom should be allowed in society? P/NP or letter grading.

**7. Introduction to Philosophy of Mind (5)** Lecture, three hours; discussion, one hour. Introductory study of philosophical issues about nature of the mind and its relation to the body, including materialism, functionalism, behaviorism, determinism and free will, nature of psychological knowledge. P/NP or letter grading.

**8. Introduction to Philosophy of Science (5)** Lecture, three hours; discussion, one hour. Study of selected problems concerning the character and reliability of scientific understanding, such as nature of scientific theory and explanation, reality of theoretical entities, inductive confirmation of hypotheses, and occurrence of scientific revolutions. Discussion at nontechnical level of episodes from history of science. P/NP or letter grading.

**9. Principles of Critical Reasoning (5)** Lecture, four hours; discussion, one hour. Nature of arguments: how to analyze them and assess soundness of reasoning they represent. Common fallacies that often occur in arguments discussed in light of what counts as good deductive or inductive inference. Other topics include use of language in argumentation to arouse emotions as contrasted with conveying thoughts, logic of scientific experiments and hypothesis-testing in general, and some general ideas about probability and its application in making normative decisions (e.g., betting). P/NP or letter grading.

**10. Philosophy of Death and Grief (5)** Lecture, three to four hours; discussion, one hour (when scheduled). Students engage with contemporary and historical philosophical approaches to the significance of one's own death and the death of others, approaching the topics from an ethical, political, and moral-psychological framework. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**21. Skepticism and Rationality (5)** Lecture, four hours; discussion, one hour. Can we know anything with certainty? How can we justify any of our beliefs? Introduction to study of these and related questions through works of some great philosophers of modern period, such as Descartes, Hume, Leibniz, or Berkeley. P/NP or letter grading.

**22. Introduction to Ethical Theory (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 22W. Recommended or required for many upper-division courses in Group III. Systematic introduction to ethical theory, including discussion of egoism, utilitarianism, justice, responsibility, meaning of ethical terms, relativism, etc. P/NP or letter grading.

**22W. Introduction to Ethical Theory (5)** Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Limited to freshmen/sophomores. Not open for credit to students with credit for course 22. Introduction to major ethical theories in Western thought. Examination of works of Plato, Aristotle, Hume, Kant, and Mill. Topics include ideas of virtue, obligation, egoism, relativism, and foundations of morals. Four papers required. Satisfies Writing II requirement. Letter grading.

**23. Meaning and Communication (5)** Lecture, three hours; discussion, one hour. Theory of meaning and its relationship to philosophy more generally; nature, origins, and acquisition of language. Additional topics may include non-linguistic and nonhuman systems of communication; theories of interpretation in law, literature, and art; use of theoretical terms in science. P/NP or letter grading.

**24. Language and Identity (5)** (Same as Linguistics M7.) Lecture, four hours; discussion, one hour (when scheduled). How do we use language to project our own identity? How do we use it to perceive or shape identity of others? Introduction to speech act theory and various claims that speech act theory can account for systematic subordination of women; maligning of racial minorities; and, in some cases, incitement to violence through hate speech. Provides foundation for students of linguistic theory, philosophy, sociology, anthropology, and communication studies. P/NP or letter grading.

**31. Logic, First Course (5)** Lecture, four hours; discussion, one hour. Recommended for students who plan to pursue more advanced studies in logic. Elements of symbolic logic, sentential and quantificational; forms of reasoning and structure of language. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Freshman Seminar (4)** Variable topics; consult Schedule of Classes or Department Announcements for topics to be offered in a specific term. May be repeated for credit with consent of instructor.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100A. History of Greek Philosophy (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Survey of origins of Greek metaphysics from pre-Socratics through Plato and Aristotle. P/NP or letter grading.

**100B. Medieval and Early Modern Philosophy (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Strongly recommended prerequisite: course 100A. Survey of development and transformation of Greek metaphysics and epistemology within context of philosophical theology, and transition from medieval to early modern period. Special emphasis on Augustine, Anselm, Aquinas, and Descartes. P/NP or letter grading.

**100C. History of Modern Philosophy, 1650 to 1800 (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Strongly recommended prerequisite: course 100B. Courses 100A, 100B, and 100C should be taken in immediately successive terms if possible. Survey of development of

metaphysics and theory of knowledge from 1650 to 1800, including Locke and/or Berkeley, Malebranche and/or Leibniz, and culminating in Hume and Kant. Topics may include views of these (and perhaps other) philosophers of the period on mind and body, causality, existence of God, skepticism, empiricism, limits of human knowledge, and philosophical foundations of modern science. P/NP or letter grading.

**101A. Plato—Earlier Dialogues (4)** (Same as Classics M146A.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato. P/NP or letter grading.

**101B. Plato—Later Dialogues (4)** (Same as Classics M146B.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in middle and later dialogues of Plato. P/NP or letter grading.

**102. Aristotle (4)** (Same as Classics M147.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle. P/NP or letter grading.

**103A. Ancient Greek and Roman Philosophy (4)** (Same as Classics M145A.) Lecture, three hours. Study of some major Greek and Roman philosophical texts, including those of pre-Socratics, Plato, Aristotle, and Hellenistic philosophers, with emphasis on historical and cultural setting of texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues. P/NP or letter grading.

**103B. Later Ancient Greek Philosophy (4)** (Same as Classics M145B.) Lecture, three hours. Preparation: one course from 1, 100A, M101B, M102, or M103A. Study of some major texts in Greek philosophy of Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

**104. Topics in Islamic Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Development of philosophy within orbit of Islam from beginning of interaction of Islam with ancient philosophy to period of hegemony of Ottoman Empire. Figures examined may vary but usually include many of al-Kindi, Ibn Sina (Avicenna), al-Ghazali, ben Maimon (Maimonides), Ibn Rushd (Averroes), and Suhrawardi. Topics include central issues in metaphysics and epistemology. May be repeated for credit with consent of instructor. P/NP or letter grading.

**105A. Ancient Indian Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Study of the four main traditions of classical Indian philosophy up to the 11th century: Hinduism, Jainism, Buddhism, and C<sub>rv</sub>ka. Examination of metaphysics of self and consciousness, sources of knowledge, structure of the mind, nature of reality, and the ethical outlook of these traditions. Study of main arguments in favor of the different positions offered by these traditions, and the differences between specific sub-schools of the traditions. Emphasis on philosophical argumentation and analysis. P/NP or letter grading.

**105B. Medieval Indian Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Study of the four main traditions of classical Indian philosophy from the 11th to the 17th century: Hinduism, Jainism, Buddhism, and C<sub>rv</sub>ka. Examination of metaphysics of self and consciousness, sources of knowledge, structure of the mind, nature of reality, and the ethical outlook of these traditions. Study of main arguments in favor of the different positions offered by these traditions, and the differences between specific sub-schools of the traditions. Emphasis on philosophical argumentation and analysis. P/NP or letter grading.

**106. Later Medieval Philosophy (4)** Prerequisite: one philosophy course or consent of instructor. Metaphysics, theory of knowledge, and theology of Aquinas, Duns Scotus, and Ockham, with less full discussion of other authors from the 13th through early 15th century. Selected texts read in English translation.

**107. Topics in Medieval Philosophy (4)** Lecture, four hours; discussion, one hour. Preparation: one philosophy course. Recommended requisite: course 105 or 106. Study of philosophy and theology of one medieval philosopher such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham, or study of one single area such as logic or theory of knowledge in several medieval philosophers. Topic announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

**C108. Hobbes (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C208. P/NP or letter grading.

**C109. Descartes (4)** Lecture, four hours; discussion, one hour. Requisites: course 21 or two philosophy courses. Study of works of Descartes, with discussion of issues such as problem of skepticism, foundations of knowledge, existence of God, relation between mind and body, and connection between science and metaphysics. May be concurrently scheduled with course C209. P/NP or letter grading.

**C110. Spinoza (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Selected topics in philosophy of Spinoza. May be concurrently scheduled with course C210. Limited to 30 students when concurrently scheduled. P/NP or letter grading.

**C111. Leibniz (4)** Lecture, three hours; discussion, one hour. Requisite: course 21. Study of philosophy of Leibniz. May be concurrently scheduled with course C211, in which case there is weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. P/NP or letter grading.

**C112. Locke and Berkeley (4)** Lecture, four hours. Preparation: one philosophy course. Study of philosophies of Locke and Berkeley, with emphasis in some cases on one or the other. Limited to 30 students when concurrently scheduled with course C212. P/NP or letter grading.

**C114. Hume (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics from metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214. P/NP or letter grading.

**C115. Kant (4)** Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit with consent of instructor. Concurrently scheduled with course C215. P/NP or letter grading.

**116. 19th-Century Philosophy (4)** Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Selected topics in 19th-century thought.

**117. Late 19th- and Early 20th-Century Philosophy (4)** Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Selected topics in work of one or more of following philosophers: Bolzano, Frege, Husserl, Meinong, G. Moore, early Russell, and Wittgenstein. May be repeated for credit with consent of instructor.

**118. Kierkegaard (4)** Preparation: one philosophy course. Philosophical study of some major works of Kierkegaard, with emphasis on interpretation of the texts.

**118B. Kierkegaard and Philosophy of Religion (4)** (Same as Religion M118B.) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Study of selected works of Kierkegaard on philosophy of religion, with emphasis on interpretation of texts. P/NP or letter grading.

**C119. Topics in History of Philosophy (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected philosophers or themes in history of philosophy from different periods (e.g. ancient and medieval, medieval and early modern). May be repeated for credit with consent of instructor. Concurrently scheduled with course C219. P/NP or letter grading.

**122. Topics in Philosophy of Science (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Philosophical investigation into one aspect of scientific practice (e.g., theorizing, experimentation, modeling, explanation, prediction). May be repeated for credit with consent of instructor. P/NP or letter grading.

**123. Science and Values (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Discussion of how moral, social, and political values inform scientific inquiry. May be repeated for credit with consent of instructor. P/NP or letter grading.

**124. Philosophy of Science: Historical (4)** (Formerly numbered 124.) (Same as Chemistry M124.) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one course in philosophy or a physical science. Historical introduction to philosophy of science. Discussion of general topics in context of actual episodes in development of natural sciences. May be repeated for credit with consent of instructor. P/NP or letter grading.

**125. Philosophy of Science: Contemporary (4)** Lecture, three hours; discussion, one hour. Requisite: course 31 or 124. Introduction to contemporary philosophy of science, focusing on problems of central importance. May be repeated for credit with consent of instructor.

**126. Philosophy of Science: Social Sciences (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Discussion of topics in philosophy of social sciences (e.g., methods of social sciences in relation to physical sciences, value-bias in social inquiry, concept formation, theory construction, explanation and prediction, nature of social laws).

**C127A. Philosophy of Language (4)** Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Syntax, semantics, pragmatics. Semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit with consent of instructor. Concurrently scheduled with course C228A. P/NP or letter grading.

**C127B. Philosophy of Language (4)** Lecture, four hours; discussion, one hour. Requisite: course 31. Course C127A is not requisite to C127B. Selected topics similar to those considered in course C127A, but at more advanced and technical level. May be repeated for credit with consent of instructor. Concurrently scheduled with course C228B. P/NP or letter grading.

**C127C. Philosophy of Language (4)** Lecture, four hours; discussion, one hour. Requisite: course 31. Recommended: course C127A or C127B. Selected topics similar to those considered in course C127B, but with focus on contemporary figures. May be repeated for credit with consent of instructor. Concurrently scheduled with course C228C. P/NP or letter grading.

**C128. Topics in Philosophy of Mathematics (4)** Lecture, four hours. Requisites: courses 31, 132, and preferably one additional logic course. Introduction to philosophy of mathematics. Survey of philosophy of mathematics from Kant to Hilbert. Study of content and development of three main schools of logicism, formalism, and intuitionism in their historical context. Study of original texts of philosophy such as Kant, Frege, and Russell, and how their philosophy interacted with contemporary developments in mathematics and logic. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C223. P/NP or letter grading.

**129. Philosophy of Psychology (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one 4-unit psychology course, one philosophy course. Selected philosophical issues arising from psychological theories. Nature of perception and issues about perceptual psychology and development of important types of representation (e.g., of body, cause, agency) in early childhood. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax. May be repeated for credit with consent of instructor. P/NP or letter grading.

**130. Philosophy of Space and Time (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses or one philosophy course and one physics course. Selected philosophical problems concerning nature of space and time. Philosophical implications of space-time theories, such as those of Newton and Einstein. Topics may include nature of geometry, conventionalism, absolutist versus relationist views of space and time, philosophical impact of relativity theory.

**131. Science and Metaphysics (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: two philosophy courses. Recommended: some background in basic calculus and physics. Intensive study of one or two metaphysical topics on which results of modern science have been thought to bear. Topics may include nature of causation, reality and direction of time, time-travel, backwards causation, realism, determinism, absolute view of space, etc. May be repeated for credit with consent of instructor. P/NP or letter grading.

**132. Logic, Second Course (4)** Lecture, four hours; discussion, one hour. Enforced requisite: course 31 (preferably in preceding term). Symbolic logic: extension of systematic development of course 31. Quantifiers, identity, definite descriptions. P/NP or letter grading.

**133. Topics in Logic and Semantics (4)** Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics. May be repeated for credit with consent of instructor. P/NP or letter grading.

**C133B. Probability and Inductive Logic (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 31, or background in logic, computer science, statistics, or mathematics. Topics may include interpretations of probability, Bayesian and non-Bayesian confirmation theory, paradoxes of confirmation, coherence, and conditioning. May be concurrently scheduled with course C225. P/NP or letter grading.

**133C. Topics in Probability and Inductive Logic (4)** Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 31, or background in logic, computer science, statistics, or mathematics. Topics may include learning theory, statistical inference, causal inference, artificial intelligence, non-probabilistic approaches to inductive logic, or deeper study of topics from course C133B. May be repeated for credit with consent of instructor. P/NP or letter grading.

**134. Introduction to Set Theory (4)** (Same as Mathematics M114S.) Lecture, three hours; discussion, one hour. Requisite: course 135 or Mathematics 110A or 131A. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

**135. Introduction to Metalogic (4)** Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Strongly recommended requisite: course 132 (or Mathematics 33A or 33B). Metatheory sentential logic and first-order logic.

Introduction to formal language, formal deductive systems, and models. Compactness and completeness theorems that concern complexity of notion of logical consequences. P/NP or letter grading.

**136. Modal Logic (4)** Lecture, four hours. Requisites: courses 31 (enforced), 135. Introduction to model theory of modal logic (family of systems that includes logics of possibility and necessity, temporal logics, epistemic logics, and logics of actions/programs). Topics include invariance results, definability theory, completeness theory, game-theoretic methods, and relationship between modal logics and (classical) first- and second-order logic. P/NP or letter grading.

**137. Philosophy of Biology (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Intensive study of one or two current topics in philosophy of biology, which may include structure of evolutionary theory, fitness, taxonomy, reductionism, concept of biological species, and biological explanation. P/NP or letter grading.

**138. Philosophy of Visual Representation (4)** Lecture, four hours. Preparation: one philosophy course (in philosophy of mind or language recommended). Investigation of philosophical questions relating to visual representation. Possible topics include visual perception, mental imagery, image versus language, semiotics, pictorial representation, comics and film, diagrams, and data visualization. P/NP or letter grading.

**150. Society and Morals (4)** Lecture, three hours; discussion, one hour. Requisite: course 22. Critical study of principles and arguments advanced in discussion of current moral and social issues. Topics similar to those in course 4, but familiarity with some basic philosophical concepts and methods presupposed. May be repeated for credit with consent of instructor.

**151A. History of Ethics: Selected Classics in Ancient Ethical Theories—Plato, Aristotle (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. May be taken independently for credit. P/NP or letter grading.

**C151B. History of Ethics: Modern (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Intensive study of Kant's ethical theory. May be taken independently for credit. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C245. P/NP or letter grading.

**151C. History of Ethics: Selected Classics of Medieval Ethics (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. May be taken independently for credit. P/NP or letter grading.

**152A. Topics in Moral Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Study of selected topics in moral philosophy. Possible topics may include role of emotions in moral agency, reactive attitudes and other responses to moral and immoral action, moral motivation, moral relationships, moral character and identity, and moral change and moral transformation. May be repeated for credit with consent of instructor. P/NP or letter grading.

**152B. Topics in Moral Philosophy: Evil (4)** (Same as Study of Religion M179.) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Course 152A is not requisite to M152B. Exploration of philosophical issues raised by topic of evil actions and/or evil people. Issues may include nature of evil, problem of evil and theodicies, responsibility for evil and problem of free will, causes and motivations for evil action, and variant responses to evil such as forgiveness and punishment. P/NP or letter grading.

**153A. Topics in Ethical Theory: Normative Ethics (4)** Lecture, three hours; discussion, one hour. Requisite: course 22. Study of selected topics in normative ethical theory. Topics may include human rights, virtues and vices, principles of culpability and praiseworthiness (criteria of right action). May be repeated for credit with consent of instructor. P/NP or letter grading.

**C153B. Topics in Ethical Theory: Metaethics (4)** Lecture, three hours; discussion, one hour. Requisite: course 22. Study and analysis of basic concepts, selected problems, and contemporary issues in metaethics. Topics may include analysis of moral language, justification of moral beliefs, moral realism, skepticism, free will, moral motivation, etc. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C253B. P/NP or letter grading.

**154. Topics in Value Theory: Rationality and Action (4)** Lecture, three hours; discussion, one hour. Requisite: course 6 or 7 or 22. Selected topics concerning normative issues in practical rationality or philosophy of action. Topics may include moral and practical dilemmas, nature of reasons for action, rationality of morality and prudence, weakness of will, freedom of will, and decision theory. May be repeated for credit with consent of instructor. P/NP or letter grading.

**C154B. Topics in Value Theory: Moral Responsibility and Free Will (4)** (Formerly numbered 154B.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination of philosophical problems surrounding moral responsibility and free will, using contemporary or classical readings in attempt to better understand kind of freedom required for moral agents. May be repeated for credit. May be concurrently scheduled with course C244B. P/NP or letter grading.

**155A. Medical Ethics (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Course 155A is not requisite to 155B. Examination of philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation. May be repeated for credit with consent of instructor. P/NP or letter grading.

**155B. Topics in Medical Ethics (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Course 155A is not requisite to 155B. Intensive investigation of one or two topics or philosophical issues in medical ethics, such as paternalism, truth-telling, physician-patient relationship, distributional justice, autonomy and medical decision making, and research ethics. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

**C156. Topics in Political Philosophy (4)** Lecture, three hours; discussion, one hour. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C247. P/NP or letter grading.

**157A. History of Political Philosophy (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Reading and discussion of classic works in earlier political theory, especially those by Hobbes, Locke, Hume, and Rousseau. May be repeated with consent of instructor.

**157B. History of Political Philosophy (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Reading and discussion of classic works in later political theory, especially those by Kant, Hegel, and Marx. May be repeated with consent of instructor.

**161. Topics in Aesthetic Theory (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Philosophical theories about nature and importance of art and art criticism, aesthetic experience, and aesthetic values. May be repeated for credit with consent of instructor.

**166. Philosophy of Law (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination, through study of recent philosophical writings, of such topics as nature of law, relationship of law and morals, legal reasoning, punishment, and obligation to obey law. May be repeated for credit. P/NP or letter grading.

**167. Feminist Issues in Value Theory (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Study of ethical dimensions of feminist theory. Issues discussed may include contested significance of gender; different models of gender identity and gender equality; gender discrimination, subordination, hierarchy, and resistance; gender equality in family and workplace; sexual harassment and violence; reproductive freedom; and just and unjust institutional arrangements as they affect gender. P/NP or letter grading.

**168. Philosophy of Race (4)** Lecture, three hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Examination of theories of race and racism and intersection of race with other social structures. Topics may include metaphysics of race, social construction, racial identity, racial injustice, foundations of racial solidarity, and relationships between race and ethnicity, race and class, and race and gender. P/NP or letter grading.

**169. Latinx Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Examination of the contributions of philosophers of Latin American descent in the U.S. Topics include social identity, mestizaje, indigeneity, coloniality, linguistic oppression, immigration and citizenship, canon formation, and metaphysical questions about the possibility and value of Latinx philosophy. P/NP or letter grading.

**170. Philosophy of Mind (4)** Lecture, three hours; discussion, one hour. Preparation: two relevant philosophy courses. Analysis of various problems concerning nature of mind and mental phenomena, such as relation between mind and body, and our knowledge of other minds. May be repeated once for credit with consent of instructor.

**172. Philosophy of Language and Communication (4)** Lecture, three hours; discussion, one hour. Theories of meaning and communication; how words refer to things; limits of meaningfulness; analysis of speech acts; relation of everyday language to scientific discoveries. P/NP or letter grading.

**173. Philosophy of Medicine (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Focus on questions like what is health, what is well-being, what is mental disorder, and what is disability. Consideration of naturalistic, normative, and social constructivist types of answers, and error theories. Consideration of roles that fact, value, statistical norms, normal variation,

normal function, and harm might have in these concepts. Study of consequences of different accounts of these concepts for people with minority bodies, minds, and sexualities, and for decisions about cure, enhancement, and reproduction. P/NP or letter grading.

**174. Topics in Theory of Knowledge (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Requisite: course 21. Intensive investigation of one or two selected topics or works in theory of knowledge, such as a priori knowledge, problem of induction, memory, knowledge as justified true belief. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

**175. Topics in Philosophy of Religion (4)** (Same as Religion M175.) Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Intensive investigation of one or two topics or works in philosophy of religion, such as attributes of God, arguments for or against existence of God, or relation between religion and ethics. Topics announced each term. May be repeated for credit with consent of instructor.

**176. Metaphysics and Epistemology of Modality (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Study of metaphysics and epistemology of modality. Central topics include what possible worlds are, and if they are sets of sentences or real concrete particular universes; non-reductive possible worlds analysis of modality; plausibility of realism or anti-realism about modality; existence of one and the same individual in many possible worlds or only in one world; the relation between essence, modality, and grounding; how what is possible, necessary, or essential is known; imagination or conceivability as a guide to possibility; relation between counterfactual and modal reasoning. P/NP or letter grading.

**177A. Existentialism (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Analysis of methods, problems, and views of some of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Marcel, and Camus. Possible topics include metaphysical foundations, nature of mind, freedom, problem of self, other people, ethics, existential psychoanalysis. May be repeated for credit with consent of instructor. P/NP or letter grading.

**177B. Historical Studies in Existentialism (4)** Preparation: one philosophy course. Study of central philosophical texts of one of the following: Nietzsche, Heidegger, Jaspers, Buber, Sartre, or Camus. Emphasis on explication and interpretation of the texts. May be repeated for credit with consent of instructor.

**178. Phenomenology (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Introduction to phenomenological method of approaching philosophical problems via works of some of the following: Brentano, Husserl, Heidegger, Scheler, Sartre, Merleau-Ponty, Ricoeur. Topics include ontology, epistemology, and particularly philosophy of mind.

**179. Asian Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Critical study of two or more traditions originating from the areas now geographically known as China, India, Japan, Korea, and the Middle East. Focus on study of core doctrines from some of these traditions in addition to argument identification, reconstruction, and evaluation. May be repeated for credit with consent of instructor. P/NP or letter grading.

**180. Philosophy of Action (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: two philosophy courses. Study of various concepts employed in understanding human action. Topics may include rational choice, desire, intention, weakness of will, and self-deception. May be repeated for credit with consent of instructor. P/NP or letter grading.

**181. Philosophy of Perception (4)** Lecture, four hours. Preparation: two philosophy courses. Critical study of main philosophical theories of perception and arguments used to establish them. P/NP or letter grading.

**182. Elements of Metaphysics (4)** Lecture, three hours; discussion, one hour. Requisite: course 21. Study of basic metaphysical questions; nature of physical world, of minds, and of universals; and answers provided by alternative systems (e.g., phenomenalism, materialism, dualism). P/NP or letter grading.

**183. Theory of Knowledge (4)** Lecture, three hours; discussion, one hour. Requisite: course 21. Problem-oriented study of contemporary classics of epistemology on topics such as skepticism, justification, foundationalism, epistemic intuitions, tracking, closure, reliabilism, internalism, and externalism, among others. May be repeated for credit with consent of instructor. P/NP or letter grading.

**184. Topics in Metaphysics (4)** Lecture, three hours; discussion, one hour. Requisite: course 21. Intensive investigation of one or two topics or works in metaphysics, such as personal identity, nature of dispositions, possibility and necessity, universals and particulars, causality. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

**185. Major Philosophers of 20th Century (4)** Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Study of writings of one or more major modern philosophers (e.g., Russell, Moore, Wittgenstein, Carnap, Quine). May be repeated for credit with consent of instructor. P/NP or letter grading.

**186. Topics in 19th- and 20th-Century Indian Philosophy (4)** Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Critical study of 19th- and 20th-century Indian philosophers. Selected topics from philosophy of mind, epistemology, and metaphysics. May be repeated for credit with instructor consent. P/NP or letter grading.

**187. Topics in Feminist Philosophy: Metaphysics and Epistemology (4)** (Same as Gender Studies M110C.) Lecture, three hours; discussion, one hour (when scheduled). Requisite for Gender Studies majors: Gender Studies 10; for other students: one philosophy course. Examination in depth of different theoretical positions on gender and women as they have been applied to study of philosophy. Emphasis on theoretical contributions made by new scholarship on women in philosophy. Critical study of concepts and principles that arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, one hour. Limited to 20 students. Designed as adjunct to upper-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward College Honors for eligible students. May not be applied toward departmental honors. May be repeated for credit. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, one hour. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May not be applied toward departmental honors. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Philosophy (4)** Seminar, one hour; discussion, three hours. Variable topics; consult Schedule of Classes or Department Announcements for topic to be offered in specific term. Reading, discussion, and development of culminating project. May be repeated for credit with consent of instructor. P/NP or letter grading.

**198A. Honors Research in Philosophy (2)** Tutorial, two hours. Limited to junior/senior philosophy honors program students. To be taken in conjunction with one upper-division philosophy lecture course, either concurrently or in subsequent term, under direct supervision of lecture course instructor. Advanced work related to lecture course, further reading, and preparation of 12- to 15-page paper representing original research. Courses 198A and 198B must be taken in conjunction with two different lecture courses, and both must be taken to satisfy departmental honors requirement. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in Philosophy (2)** Tutorial, two hours. Limited to junior/senior philosophy honors program students. To be taken in conjunction with one upper-division philosophy lecture course, either concurrently or in subsequent term, under direct supervision of lecture course instructor. Advanced work related to lecture course, further reading, and preparation of 12- to 15-page paper representing original research. Courses 198A and 198B must be taken in conjunction with two different lecture courses, and both must be taken to satisfy departmental honors requirement. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in Philosophy (4)** Tutorial, four hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or research project required. Up to 8 units may be applied toward degree requirements, but no 199 course may be substituted for course in one of four groups on basis of similarity of subject matter. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Philosophy (2 to 4)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or research project required. Up to 8 units may be applied toward degree requirements, but no 199 course may be substituted for course in one of four groups on basis of similarity of subject matter. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Seminar for First-Year Graduate Students (4)** Seminar, three hours. Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. Letter grading.

**200B. Seminar for First-Year Graduate Students (4)** Seminar, three hours. Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. Letter grading.

**200C. Seminar for First-Year Graduate Students (4)** Seminar, three hours. Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. S/U or letter grading.

**201. Plato (4)** Seminar, four hours. Study of later dialogues. S/U or letter grading.

**202. Aristotle (4)** Lecture, four hours. Analysis of major problems in Aristotle's philosophy based on reading, exposition, and critical discussion of relevant texts in English translation. S/U or letter grading.

**203. Seminar: History of Ancient Philosophy (4)** Seminar, four hours. Selected problems and philosophers. May be repeated for credit with consent of instructor. S/U or letter grading.

**206. Topics in Medieval Philosophy (4)** Lecture, four hours. Study of philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham or study of single area such as logic or theory of knowledge in several medieval philosophers. Topics announced each term. May be repeated for credit with consent of instructor. S/U or letter grading.

**207. Seminar: History of Medieval and Renaissance Philosophy (4)** Seminar, four hours. Selected problems and philosophers. May be repeated for credit with consent of instructor. S/U or letter grading.

**C208. Hobbes (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C108. S/U or letter grading.

**C209. Descartes (4)** Lecture, four hours; discussion, one hour. Study of works of Descartes, with discussion of issues such as problem of skepticism, foundations of knowledge, existence of God, relation between mind and body, and connection between science and metaphysics. May be concurrently scheduled with course C109. S/U or letter grading.

**C210. Spinoza (4)** Lecture, three hours; discussion, one hour (when scheduled). Selected topics in philosophy of Spinoza. May be concurrently scheduled with course C110. S/U or letter grading.

**C211. Leibniz (4)** Lecture, three hours. Selected topics in philosophy of Leibniz. May be concurrently scheduled with course C111, in which case there is two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students. S/U or letter grading.

**C212. Locke and Berkeley (4)** Lecture, four hours. Preparation: one philosophy course. Study of philosophies of Locke and Berkeley, with emphasis in some cases on one or the other. Limited to 30 students when concurrently scheduled with course C112. S/U or letter grading.

**C214. Hume (4)** Lecture, three hours; discussion, one hour. Selected topics in philosophy of Hume. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C114. S/U or letter grading.

**C215. Kant (4)** Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit with consent of instructor. Concurrently scheduled with course C115. S/U or letter grading.

**216. 19th-Century Philosophy (4)** Seminar, four hours. Topics in 19th-century philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

**C219. Topics in History of Philosophy (4)** Lecture, three hours; discussion, one hour. Study of selected philosophers or themes in history of philosophy from different periods (e.g. ancient and medieval, medieval and early modern). May be repeated for credit with consent of instructor. Concurrently scheduled with course C119. S/U or letter grading.

**220. Seminar: Topics in History of Philosophy (4)** Seminar, three hours. Selected problems and philosophers which may be from different periods. May be repeated for credit with consent of instructor. S/U or letter grading.

**221A. Topics in Set Theory (4)** Lecture, three hours. Requisite: Mathematics M114S. Sets, relations, functions, partial and total orderings; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, continuum hypothesis, inaccessible numbers. Formalization of set theory: Zermelo/Fraenkel; von Neumann/Gödel theory. May be repeated for credit with consent of instructor. S/U or letter grading.

**221B. History of Set Theory (4)** Lecture, four hours. Development of concept of set and axiomatic set theory by examining selected writings of Frege, Cantor, Russell, Zermelo, Gödel, and several others. Origins and significance of certain key ideas, such as set theory as logic, axiomatic set theory as reaction to paradoxes, formal first-order axiomatic set theory as opposed to informal axiomatics, type theory and rank hierarchy, ramification and predicativity, proper classes and sets as small classes, and particular Zermelo/Fraenkel axiomatic theory. Emphasis on actual expressed ideas and views of various influential authors. S/U or letter grading.

**222A. Gödel Theory (4)** Lecture, four hours. Preparation: several courses in logic. First in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. S/U or letter grading.

**222B. Gödel Theory (4)** Lecture, four hours. Requisite: course 222A. Second-order arithmetic. Second in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. S/U or letter grading.

**222C. Gödel Theory (4)** Lecture, four hours. Requisite: course 222B. Gödel numbering and Gödel theory. Final course in Gödel theory series. S/U or letter grading.

**C223. Topics in Philosophy of Mathematics (4)** Lecture, four hours. Introduction to philosophy of mathematics. Survey of philosophy of mathematics from Kant to Hilbert. Study of content and development of three main schools of logicism, formalism, and intuitionism in their historical context. Study of original texts of philosophy such as Kant, Frege, and Russell, and how their philosophy interacted with contemporary developments in mathematics and logic. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C128. S/U or letter grading.

**224. Philosophy of Physics (4)** Seminar, three hours. Selected philosophical topics related to physical theory, depending on interests and background of participants, including space and time; observation in quantum mechanics; foundations of statistical mechanics. May be repeated for credit with consent of instructor. S/U or letter grading.

**C225. Probability and Inductive Logic (4)** (Formerly numbered 225.) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 31, or background in logic, computer science, statistics, or mathematics. Topics may include interpretations of probability, Bayesian and non-Bayesian confirmation theory, paradoxes of confirmation, coherence, and conditioning. May be concurrently scheduled with course C133B. S/U or letter grading.

**226. Topics in Mathematical Logic (4)** Lecture, four hours. Content varies from term to term. May be repeated for credit with consent of instructor. S/U or letter grading.

**227. Philosophy of Social Science (4)** Lecture, four hours. Examination of philosophical problems concerning concepts and methods used in social sciences. Topics may include relation between social processes and individual psychology, logic of explanation in social sciences, determinism and spontaneity in history, interpretation of cultures radically different from one's own. Students with primary interest and advanced preparation in social sciences encouraged to enroll. May be repeated for credit with consent of instructor. S/U or letter grading.

**C228A. Philosophy of Language (4)** Lecture, four hours; discussion, one hour. Enforced requisite: course 31. Syntax, semantics, pragmatics. Semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit with consent of instructor. Concurrently scheduled with course C127A. S/U or letter grading.

**C228B. Philosophy of Language (4)** Lecture, four hours; discussion, one hour. Requisite: course 31. Course C228A is not requisite to C228B. Selected topics similar to those considered in course C228A, but at more advanced and technical level. May be repeated for credit with consent of instructor. Concurrently scheduled with course C127B. S/U or letter grading.

**C228C. Philosophy of Language (4)** Lecture, four hours; discussion, one hour. Requisite: course 31. Recommended: course C228A or C228B. Selected topics similar to those considered in course C228B, but with focus on contemporary figures. May be repeated for credit with consent of instructor. Concurrently scheduled with course C127C. S/U or letter grading.

**229. Seminar: Critical Thinking (4)** Seminar, three hours. Selected topics in history, theory, and pedagogy of critical thinking. May be repeated for credit with consent of instructor. S/U or letter grading.

**230. Seminar: Logic (4)** Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**231. Seminar: Intensional Logic (4)** Seminar, four hours. Topics may include logic of sense and denotation, modal logic, logic of demonstratives, epistemic logic, intensional logic of Principia Mathematica, possible worlds semantics. May be repeated for credit with consent of instructor. S/U or letter grading.

**232. Philosophy of Science (4)** Seminar, three hours. Selected topics in philosophy of science. May be repeated for credit with consent of instructor. S/U or letter grading.

**233. Seminar: Philosophy of Physics (4)** Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**234. Topics in Philosophy of Science (4)** Seminar, three hours. One or more selected topics in philosophy of science. May be repeated for credit with consent of instructor. May not be used to satisfy special area requirement. S/U or letter grading.

**235. Philosophy of Mathematics (4)** Seminar, three hours. Selected topics in philosophy of mathematics. May be repeated for credit with consent of instructor. S/U or letter grading.

**241. Topics in Political Philosophy (4)** Seminar, four hours. Requisites: course 150 or C156 or 157A or 157B or any two philosophy courses. Examination of one or more topics in political philosophy (e.g., justice, democracy, human rights, political obligation, alienation). May be repeated for credit with consent of instructor. S/U or letter grading.

**244. Topics in Value Theory: Rationality and Action (4)** Seminar, three hours. Selected topics on normative issues in practical rationality or philosophy of action. Topics may include moral and practical dilemmas, nature of reasons for action, rationality of morality and prudence, weakness of will, freedom of will, and decision theory. May be repeated for credit with consent of instructor. S/U or letter grading.

**C244B. Topics in Value Theory: Moral Responsibility and Free Will (4)** Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination of philosophical problems surrounding moral responsibility and free will, using contemporary or classical readings in attempt to better understand kind of freedom required for moral agents. May be repeated for credit. May be concurrently scheduled with course C154B. S/U or letter grading.

**C245. History of Ethics: Modern (4)** Lecture, three hours; discussion, one hour. Intensive study of Kant's ethical theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C151B. S/U or letter grading.

**246. Seminar: Ethical Theory (4)** Seminar, four hours. Selected topics. Content varies from term to term. May be repeated for credit with consent of instructor. S/U or letter grading.

**C247. Topics in Political Philosophy (4)** Lecture, three hours; discussion, one hour. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C156. S/U or letter grading.

**248. Problems in Moral Philosophy (4)** Seminar, four hours. Intensive study of some leading current problems in moral philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

**C253B. Topics in Ethical Theory: Metaethics (4)** Lecture, three hours; discussion, one hour. Requisite: course 22. Study and analysis of basic concepts, selected problems, and contemporary issues in metaethics. Topics may include analysis of moral language, justification of moral beliefs, moral realism, skepticism, free will, moral motivation, etc. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C153B. S/U or letter grading.

**254. Legal Theory Workshop. (1 to 8)** Seminar, three hours. Students engage with work in progress on philosophical issues in law of leading scholars from around country. Presentation of works in progress by visiting scholars every two weeks. Study by students of papers to be presented to gain background in relevant topics and to be prepared for speakers' presentations. Presentation of student papers to class for discussion. Substantial analytical paper required. S/U or letter grading.



**254A. Legal Theory Workshop (3)** Seminar, three hours. Course 254A is requisite to 254B. Students engage with work in progress on philosophical issues in law of leading scholars from around country. Presentation of works in progress by visiting scholars every two weeks. Study by students of papers to be presented to gain background in relevant topics and to be prepared for speakers' presentations. Presentation of student papers to class for discussion. Substantial analytical paper required. Concurrently scheduled with Law 555. In Progress grading (credit to be given only on completion of course 254B).

**254B. Legal Theory Workshop (1)** Seminar, three hours. Requisite: course 254A. Continuation of course 254A. Students engage with work in progress on philosophical issues in law of leading scholars from around country. Presentation of works in progress by visiting scholars every two weeks. Study by students of papers to be presented to gain background in relevant topics and to be prepared for speakers' presentations. Presentation of student papers to class for discussion. Substantial analytical paper required. Concurrently scheduled with Law 555. S/U or letter grading.

**255. Seminar: Aesthetic Theory (4)** Seminar, four hours. Selected topics. May be repeated for credit with consent of instructor. S/U or letter grading.

**256. Topics in Legal Philosophy (4)** (Same as Law M217.) Lecture, three hours. Examination of topics such as concept of law, nature of justice, problems of punishments, legal reasoning, and obligation to obey the law. May be repeated for credit with consent of instructor.

**257. Philosophy Legal Theory. (1 to 8)** (Same as Law M524.) Seminar, three hours. Selected topics in philosophy of law. May be repeated for credit with consent of instructor. S/U or letter grading.

**257A. Philosophy Legal Theory. (1 to 8)** (Same as Law M524.) Seminar, two hours. Course M257A is enforced requisite to 257B. Selected topics in philosophy of law. May be repeated for credit with consent of instructor. In Progress grading (credit to be given only on completion of course 257B).

**257B. Philosophy Legal Theory. (1 to 8)** Seminar, two hours. Enforced requisite: course M257A. Continuation of course M257A. Selected topics in philosophy of law. May be repeated for credit with consent of instructor. S/U or letter grading.

**258. Contemporary Philosophy of Law (4)** Seminar, three hours. Limited to graduate students. Recent contributions to theoretical literature on contract law. Possible topics include purpose or function of contract law, relationship of contracts to promises, whether fault should play larger (or smaller) role in contract law, remedial approaches to breach including larger role for unjust enrichment, and contract law's treatment of fraud and deception. Readings from legal and philosophical literature. S/U or letter grading.

**259. Philosophical Research in Ethics and Value Theory. (2 to 4)** Seminar, two hours. Preparation: completion of proposition requirement. Presentation of ongoing research by graduate students. Participants make presentations, analyze and discuss presentations of others, and read and discuss philosophical texts related to presentations. Must be taken for 4 units in quarters in which students present their own research. May be repeated for credit with consent of instructor. S/U grading.

**270. Epistemology of Science (4)** Seminar, three hours. Selected philosophical topics at intersection of epistemology and philosophy of science including scientific knowledge, inference to best explanation, understanding, cognitive attitudes in science, probabilistic reasoning, and social epistemology of science. May be repeated for credit with consent of instructor. S/U or letter grading.

**271. Seminar: Topics in Metaphysics and Epistemology (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**272. Topics in Philosophy of Mind and Language (4)** Seminar, three hours. One or more selected topics in philosophy of mind and/or language. May be repeated for credit with consent of instructor. May not be used to satisfy special area requirement. S/U or letter grading.

**275. Human Action (4)** Preparation: two upper-division philosophy courses. Examination of theories, concepts, and problems concerning human actions. Topics may include analysis of intentional actions; determinism and freedom; nature of explanations of intentional actions. May be repeated for credit with consent of instructor.

**280. 20th-Century Continental Philosophy (4)** Seminar, three hours. Selected topics in 20th-century continental European philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

**281. Seminar: Philosophy of Mind (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**282. Seminar: Metaphysics (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**283. Seminar: Theory of Knowledge (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**284. Seminar: Philosophy of Perception (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**285. Philosophy of Psychoanalysis (4)** Seminar, three hours. Examination of topics such as nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, ego, id, superego, defense mechanisms, and psychoanalytic conception of human nature. S/U or letter grading.

**286. Philosophy of Psychology (4)** Seminar, four hours. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax; behaviorism, functionalism, and alternatives; physiology and psychology. S/U or letter grading.

**287. Seminar: Philosophy of Language (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**288. Seminar: Wittgenstein (4)** Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**289. Seminar: Philosophy of Religion (4)** Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

**290. Workshop: Philosophy of Language (2, 4)** Seminar, two hours. Ongoing discussion of current issues in philosophy of language based on contemporary texts and current research. Presentations of ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor. S/U grading.

**291. Workshop: Philosophy of Mathematics (4)** Seminar, three hours. Ongoing discussion of current issues in philosophy of mathematics based on contemporary texts and current research. Presentations of ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor. S/U or letter grading.

**292. Philosophical Research in History of Philosophy. (2 to 4)** Seminar, two hours. Prerequisite: graduate standing or consent of instructor. Ongoing discussion of current issues in history of philosophy based on contemporary texts and current research. Presentations of ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor. S/U grading.

**299. Seminar: Philosophical Research (4)** Seminar, three hours. Preparation: advancement to candidacy. Presentation of ongoing research by graduate students or faculty members. Participants make presentations, analyze and discuss presentations of others, and read and discuss philosophical texts related to presentations. May be repeated for credit with consent of instructor. S/U grading.

**495. Teaching College Philosophy (2 to 4)** Seminar, to be arranged. Seminars, workshops, and apprentice teaching. Selected topics, including evaluation scales, various teaching strategies and their effects, and other topics in college teaching. May be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Studies (2 to 12)** Tutorial, to be arranged. Properly qualified graduate students who wish to pursue one problem through reading or advanced study may do so if their proposed project is acceptable to one staff member. May be repeated for credit. S/U or letter grading.

**597. Directed Studies for Graduate Examinations (2 to 8)** Tutorial, to be arranged. Preparation for comprehensive examination or PhD oral qualifying examinations. S/U grading.

**599. Research for PhD Dissertation (2 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. May be repeated for credit. S/U grading.

# Physics and Astronomy

## Astronomy Courses

### Lower Division

**3. Nature of the Universe (5)** Lecture, three hours; laboratory, two hours. Not open to students with credit for or currently enrolled in course 81 or 82. No special mathematical preparation required beyond that necessary for admission to UCLA in freshman standing. Course for general UCLA students, normally not intending to major in physical sciences. Introduction to vast range of cosmic phenomena including planets in our solar system and beyond, stars, supernova explosions, black holes, galaxies, and universe as whole. P/NP or letter grading.

**4. Black Holes and Cosmic Catastrophes (4)** Lecture, three hours; discussion, one hour. No mathematical preparation beyond that necessary for admission to UCLA in freshman standing. Course for general UCLA students, normally not intending to major in physical sciences. Introduction to exotic cosmic phenomena known as black holes, and their bizarre effects on fabric of space and time. Some black holes form in violent events that terminate lives of stars, while formation of much more massive black holes at centers of galaxies is still mysterious. Covers cosmic catastrophes including stellar explosions and mergers, supernovae, gamma-ray bursts, and gravitational waves. Discussion of depiction of black holes in popular culture. P/NP or letter grading.

**5. Life in Universe (4)** Lecture, three hours; discussion, one hour. No special preparation required. Topics include formation and evolution of Earth and Sun, life on Earth, origin and evolution of life, solar system, habitability, extra-solar planets, search for intelligent life in universe, and interstellar travel. Draws primarily from astronomy and biology but includes some chemistry, geology, and physics. P/NP or letter grading.

**6. Cosmology: Origin, History, and Fate of Universe (4)** Lecture, three hours; discussion, one hour. No special mathematical preparation required beyond that necessary for admission to UCLA in freshman standing. Course for general UCLA students, normally not intended to majors in physical sciences. Cosmology is study of large-scale properties of universe. Consideration of origin, fate, composition, and shape of universe, and origin and evolution of structure seen in universe today. Addresses these questions through study of Big Bang, dark matter, dark energy, expansion of universe, and other cosmic phenomena. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**81. Fundamentals of Astrophysics (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, and Physics 1A or 1AH. Open to qualified sophomore and upper-division students. Students develop understanding of fundamental physical concepts such as gravity and radiation, and how these concepts connect to stars and planets. Overview of stars and stellar evolution, and tools and methods important to astrophysics such as telescopes and spectroscopy. P/NP or letter grading.

**82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, and Physics 1A or 1AH. Recommended: course 81, Physics 1B and 1C (or 1BH and 1CH). Open to qualified sophomore and upper-division students. Basic principles of stellar structure and evolution. Red giants, white dwarfs, novae, supernovae, neutron stars, and black holes. Pulsars and galactic X-ray sources. Milky Way galaxy and interstellar medium. Extragalactic astronomy, galaxy clustering, active galactic nuclei, and quasars. Introduction to cosmology: Hubble law, thermal history of Big Bang, and earliest moments of universe. P/NP or letter grading.

**88A. Lower-Division Seminar: Cosmic Evolution (2)** Seminar, two hours. Limited to freshmen. Varied astronomical and physical processes of evolution; discussion of how, over billions of years, basic mechanisms of cosmic evolution have transformed universe from fiery origin at Big Bang into abode for intelligent life. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**115. Introduction to Galactic Astronomy (4)** Lecture, three hours; discussion, one hour. Requisites: course 81, Mathematics 31A, 31B, and Physics 1A or 1AH. Open to qualified sophomore and upper-division students. Introduction of principles important for understanding components and evolution of Milky Way galaxy. Topics include interstellar medium, star and planet formation, and exoplanets. Examination of basic physical processes governing compact stellar remnants such as white dwarfs, neutron stars, and black holes. Overview of structure and properties of Milky Way galaxy. P/NP or letter grading.

**117. Introduction to Extragalactic Astrophysics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 81, 115, Mathematics 31A, 31B, and Physics 1A or 1AH. Open to qualified sophomore and upper-division students. Introduction to formation and evolution of universe from Big Bang to structure formation and galaxy evolution. Development of physics behind our modern understanding of universe on large scales. Including role of dark matter and dark energy. Introduction of energetic phenomena such as active galactic nuclei and quasars. P/NP or letter grading.

**127. Stars from Birth to Death (4)** Lecture, three hours; discussion, one hour. Requisites: courses 81, 115, 117. In-depth exploration into lives and deaths of stars. Covers production of energy and physics of stellar interiors and atmospheres. Topics include star formation, variability and evolution. Includes significant exploration of nuclear physics and advanced stages of fusion. Covers properties and formation of stellar remnants from white dwarfs to black holes. P/NP or letter grading.

**140. Galaxies (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115, 117. Designed for upper-division Astrophysics and Physics majors. Focus on basic unit of structure in universe: galaxies. Consideration of physics governing their structure and evolution, and how galaxy population has evolved over history of universe. Other topics include Milky Way, stellar dynamics, active galactic nuclei, and galaxy clusters. P/NP or letter grading.

**141. Cosmology (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115, 117. Designed for upper-division Astrophysics and Physics majors. In-depth exploration of Big Bang model for universe. Examination of what expanding universe is, how cosmologists measure its properties, and how universe has changed since Big Bang. Topics include cosmic expansion, dark matter, inflation, cosmic microwave background, Big Bang nucleosynthesis, and structure formation. P/NP or letter grading.

**142. Data and Computation in Astrophysics (4)** Lecture, two hours; discussion, four hours. Requisites: courses 81, 115, 117, and Computer Science 30 or 31 or Program in Computing 10A. Designed for upper-division Astrophysics and Physics majors. Project-based introduction to data and computation in astrophysics context. Students develop core computational toolkit for data retrieval, processing, analysis, visualization, and interpretation. Topics include analysis of large, heterogeneous datasets; high-performance computation; numerical simulations; and scientific numerical methods. P/NP or letter grading.

**143. Planets and Exoplanets (4)** Lecture, three hours; discussion, one hour. Requisites: courses 81, 115, 117, 127. Designed for upper-division Astrophysics and Physics majors. Focus on detection and characterization of planets orbiting other stars, and on physical processes that determine their formation, structure, and evolution. Topics of discussion include broader astrophysical context of planet formation and how observations of solar system properties can be incorporated into emerging understanding of extrasolar planetary systems. P/NP or letter grading.

**144. Star Formation and Interstellar Medium (4)** Lecture, three hours; discussion, one hour. Requisites: courses 81, 115, 117. Designed for upper-division Astrophysics and Physics majors. Focus on key components of interstellar medium (ISM) in galaxies, including dust, and neutral, ionized, and molecular gas. Consideration of dynamical processes, such as shocks and expanding supernova remnants. Covers process of star formation. Key ISM observational techniques are presented. P/NP or letter grading.

**145. High-Energy Astrophysics (4)** Lecture, three hours; discussion, one hour. Requisites: Physics 17, 110A, 115A. Corequisites: Physics 110B, 115B. Designed for upper-division Astrophysics and Physics majors. Introduction to high-energy universe, with overview of sources of high energy (X-ray and gamma-ray) emission. Covers importance of energetic particles in galaxy and connection of high-energy astronomy to cosmology and particle physics. P/ NP or letter grading.

**146. Astronomical Instrumentation (4)** Lecture, three hours; discussion, one hour. Requisites: courses 81, 115, 117. Designed for upper-division Astrophysics and Physics majors. Focus on modern observational techniques for astronomy. Topics include optical and infrared techniques including telescope design, charge-coupled devices, and infrared detectors. These also include adaptive optics systems and high contrast detection methods. Covers all other electromagnetic windows from radio waves to gamma rays. Other topics include neutrino, dark matter, and gravitational wave detection. P/NP or letter grading.

**180. Astrophysics Laboratory (4)** Lecture, two hours; laboratory, four hours. Designed for juniors/seniors in astrophysics, physics, or related field. Topics include statistical methods in astrophysics, instrumentation, data reduction, and optics. Laboratory experiments include observations of sun, stars, and other astronomical objects. Emphasis on use of computers for making measurements from two-dimensional astronomical images. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Astrophysics (2)** Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**194. Research Group Seminars: Astrophysics (1)** Research group meeting, one hour. Designed for undergraduate students who are part of research group/laboratory. Discussion of research of faculty members or students with regard to understanding methodology in field and/or laboratory equipment. May be repeated for credit. P/NP grading.

**196. Research Apprenticeship in Astrophysics (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors with overall 3.0 grade-point average. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

**197. Individual Studies in Astronomy (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198. Honors Research in Astrophysics (2 to 4)** Tutorial, 12 hours. Limited to juniors/seniors with minimum overall 3.0 grade-point average. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Astronomy (2 to 4)** Tutorial, two hours. Limited to junior/senior Astrophysics and Physics majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**270. Astrophysical Dynamics (4)** Lecture, three hours. Orbital dynamics: two-body problem, three-body problem, resonances, tides, migration. Galactic potentials. Milky Way structure and observed properties of galaxies. Collisionless Boltzmann equation and relaxation processes. Stability of stellar systems. Spiral structure. Letter grading.

**271. Electromagnetic Radiation in Astrophysics (4)** (Formerly numbered 271A.) Lecture, three hours. Fundamentals of radiation field and Maxwell equations. Covariant formulation of fields and particles. Fundamentals of radiative transfer. Radiation from accelerated charges and mechanisms of continuous radiation. Line radiation. Thermal, statistical, and ionization equilibrium. Letter grading.

**272. Stellar Astrophysics (4)** Lecture, three hours. Observations of stars. Equations of stellar structure and stellar models. Nuclear energy sources. Star formation. Binary stars. Main sequence stellar evolution. Compact objects: white dwarfs, neutron stars, and black holes. Brown dwarfs. Letter grading.

**273. Diffuse Matter in Space (4)** Lecture, three hours. Molecular clouds, warm and hot phases of interstellar medium, HII regions. Gas excitation and emission in diffuse matter. Particulate interstellar matter: formation and spectral properties. Interstellar chemistry. Intergalactic medium. Letter grading.

**274. Extragalactic Astrophysics I (4)** Lecture, three hours. Observational foundations of Big Bang. Friedmann equation. Cosmic inflation. Cosmic microwave background. Big Bang nucleosynthesis. Structure formation. Observations and theory of galaxy evolution. Galaxy clusters. Intergalactic medium. Letter grading.

**275. Extragalactic Astrophysics II (4)** Lecture, three hours. Perturbation theory in expanding universe. Cosmological recombination. Nonlinear structure formation. Dark matter halos. Cosmological simulations. Galaxy surveys through cosmic time. Stellar populations. Models of galaxy formation. Galaxies and supermassive black holes. Letter grading.

**276. Instrumentation and Observational Techniques (4)** Lecture, three hours. Telescopes, optical principles, cameras, and spectrographs. Optical detectors; photomultiplier tubes, CCDs. Infrared detectors and arrays. Radio detectors. X-ray and gamma-ray detectors. Interferometry and aperture synthesis. Data analysis techniques. Statistical methods. Letter grading.

**277A. Astronomy Research Project (6)** Tutorial, to be arranged. Designed for second-year graduate astronomy students. Two-term research project planned in conjunction with faculty adviser on any suitable research topic in astronomy or astrophysics, culminating in written report at end of second term. S/U grading.

**277B. Astronomy Research Project (6)** Tutorial, to be arranged. Designed for second-year graduate astronomy students. Two-term research project planned in conjunction with faculty adviser on any suitable research topic in astronomy or astrophysics, culminating in written report at end of second term. Letter grading.

**278. Special Topics in Astronomy (2 to 4)** Seminar, to be arranged. Informal course with lecture/seminar format, focusing on one of set of specific topics in astronomy. S/U (2-unit course) or letter (4-unit course) grading.

**279. Seminar: Current Astronomical Research (2)** Seminar, one hour. Astronomy and astrophysics colloquium with lectures on current research by local and visiting researchers. S/U grading.

**280. Fluid Dynamics in Astrophysics (4)** Lecture, three hours. Basic equations and concepts of fluid dynamics and plasma physics with applications to shocks, supernovae, winds, and accretion. Fluid instabilities. Fundamentals of magnetohydrodynamics. Letter grading.

**281. Quantum Mechanics for Astrophysics (4)** Lecture, four hours. Designed for departmental graduate students. Quantum mechanical topics in areas of interest for astrophysics applications. Hydrogen atom, radiative transitions, complex atoms, molecular spectroscopy including electronic, vibrational, and rotational transition, nuclear reaction theory. Letter grading.

**282. High-Energy Astrophysics (4)** Lecture, three hours. Interactions of high-energy photons with matter. Telescopes and detectors (X-ray, gamma-ray, and radio). Accretion. Supernovae and gamma-ray bursts. Compact objects. Active galactic nuclei. Particle acceleration and cosmic rays. Dark matter, gravitational waves, neutrino astronomy. Letter grading.

**283. Numerical and Statistical Methods (4)** Lecture, three hours. Topics selected by instructor in mathematical, numerical, and statistical methods of relevance to modern astrophysical research. Topics include Fourier transforms, filtering, and power spectra, numerical algorithms, N-body codes, maximum likelihood, Bayesian inference, and error estimation. Letter grading.

**284. Order of Magnitude Astrophysics (4)** Lecture, three hours. Practice in real-time problem solving covering all fields of astrophysics. Topics selected by instructor. Students work together and individually to solve problems on blackboard using basic physics and order of magnitude estimations. Letter grading.

**285. Origin and Evolution of Solar System (4)** (Same as Earth, Planetary, and Space Sciences M285.) Lecture, four hours. Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmo-

sphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

**286. Exoplanets: Properties, Origin, and Evolution (4)** Lecture, three hours. Detection and statistics of extrasolar planets. Theories of planet formation. Structural and dynamical evolution of planets. Signatures and consequences of evolution. Interior and atmospheric structure. Relationship between planets and smaller bodies. Habitable zones. Letter grading.

**296. Research Topics in Astronomy (2)** Discussion, two hours. Advanced study and analysis of current topics in astronomy. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**297. Practice of Scientific Presentations in Astronomy (2)** (Formerly numbered M297.) Lecture, one hour. Training and practice in giving scientific presentations in context of astronomy and astrophysics. Includes brief review of basic principles of effective scientific communication. Students give talks on their research and/or other topics and receive detailed feedback from both peers and instructor. May be repeated for credit. S/U grading.

**596A. Directed Individual Studies (4 to 10)** Tutorial, to be arranged. May be repeated at discretion of department. S/U grading.

**596L. Advanced Study and Research at Lick Observatory (4 to 12)** Tutorial, to be arranged. Designed for graduate students who require observational experience, as well as those working on observational problems for their thesis. S/U grading.

**599. PhD Research and Writing (10 to 12)** Tutorial, to be arranged. May be repeated at discretion of department. S/U grading.

## Physics Courses

### Lower Division

**1A. Physics for Scientists and Engineers: Mechanics (5)** Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B. Enforced corequisite: Mathematics 32A. Motion, Newton laws, work, energy, linear and angular momentum, rotation, equilibrium, gravitation. P/NP or letter grading.

**1AH. Physics for Scientists and Engineers: Mechanics (Honors) (5)** Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B. Enforced corequisite: Mathematics 32A. Recommended corequisite: Mathematics 32B. Enriched preparation for upper-division physics courses. Same material as course 1A but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

**1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (5)** Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1A, Mathematics 31B, 32A. Enforced corequisite: Mathematics 32B. Fluid mechanics, oscillation, mechanical waves, and sound. Electric charge, field and potential, capacitors, and dielectrics. Currents and resistance, direct-current circuits. P/NP or letter grading.

**1BH. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (Honors) (5)** Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1AH or 1A, Mathematics 31B, 32A. Enforced corequisite: Mathematics 32B. Recommended corequisite: Mathematics 33A. Enriched preparation for upper-division physics courses. Same material as course 1B but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

**1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (5)** Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1A, 1B, Mathematics 32A, 32B. Enforced corequisite: Mathematics 33A. Magnetic fields, Ampere's law, Faraday's law, inductance, and alternating current circuits. Maxwell's equations, electromagnetic waves, light, geometrical optics, interference and diffraction. Special relativity. P/NP or letter grading.

**1CH. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (Honors) (5)** Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: courses 1AH or 1A, 1BH or 1B, Mathematics 32A, 32B. Enforced corequisite: Mathematics 33A. Recommended corequisite: Mathematics 33B. Enriched preparation for upper-division physics courses. Same material as course 1C but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

**4AL. Physics Laboratory for Scientists and Engineers: Mechanics (2)** Laboratory, four hours. Enforced requisite: course 1A or 1AH. Enforced corequisite: course 1B or 1BH. Computerized measurements of uniform and accelerated

motion, including oscillations. Analysis of data and comparison of results to predictions, including least-squares fitting. Conception, execution, and presentation of creative projects involving motion. Letter grading.

**4BL. Physics Laboratory for Scientists and Engineers: Electricity and Magnetism (2)** Laboratory, four hours. Enforced requisites: courses 1A or 1AH, 1B or 1BH. Enforced corequisite: course 1C or 1CH. Sound waves and electric circuits, taken by digital oscilloscopes and analyzed by Fourier transformation. Geometrical and physical optics. Conception, execution, and presentation of creative projects involving sound waves or electric circuits. Letter grading.

**5A. Physics for Life Sciences Majors: Mechanics and Energy (5)** Lecture, three hours; discussion, one hour; laboratory, two hours. Requisites: Life Sciences 30A, 30B, or Mathematics 3A, 3B, 3C (3C may be taken concurrently). Statics and dynamics of forces, motion, energy, including thermal energy, with applications to biological and biochemical systems. P/NP or letter grading.

**5B. Physics for Life Sciences Majors: Thermodynamics, Fluids, Waves, Light, and Optics (5)** Lecture, three hours; discussion, one hour; laboratory, two hours. Requisite: course 5A. Thermal properties of matter, free energy, fluids, ideal gas, diffusion, oscillations, waves, sounds, light, and optics, with applications to biological and biochemical systems. P/NP or letter grading.

**5C. Physics for Life Sciences Majors: Electricity, Magnetism, and Modern Physics (5)** Lecture, three hours; discussion, one hour; laboratory, two hours. Requisite: course 5A. Electrostatics in vacuum and in water. Electricity, circuits, magnetism, quantum, atomic and nuclear physics, radioactivity, with applications to biological and biochemical systems. P/NP or letter grading.

**10. Physics (4)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 1A, 1AH, 5A, or 6A. Special mathematical preparation beyond that necessary for admission to University in freshman standing not required. Topics include planetary motion, Newton laws, gravitation, electricity and magnetism, wave motion, light, sound, and heat, relativity, quantum mechanics, atoms, and subatomic particles. As time permits, development of physical ideas placed in cultural and historical perspective. P/NP or letter grading.

**11. Revolutions in Physics (4)** Lecture, three hours; discussion, one hour. Survey of modern physics intended for general UCLA students. Overview of classical physics from late 19th century and its growing set of dilemmas. Revolutions of relativity and quantum mechanics that have led to much deeper understanding of structure and evolution of our Universe. Specific topics include special and general relativity, cosmology (Big Bang), quantization of light, nucleus and radioactivity, origin of elements, and quantum mechanics. P/NP or letter grading.

**12. Physics of Sustainable Energy (4)** Lecture, three hours; discussion, one hour. Special mathematical preparation beyond that necessary for admission to UCLA in freshman standing not required. Discussion of physics underpinnings of energy sources and consumption, with emphasis on renewables. Global view of energy balance in our lives from point of view of physical processes. Ways in which energy is used in everyday life (transportation, heating, cooling), and ways in which it is produced, covering all common and speculative sources of energy from fossil fuels to solar, wind, nuclear, and fusion. Fundamental physical limitations of each technology to master concepts such as efficiency of thermodynamic cycles and of chemical and nuclear reactions. Quantitative estimation of amount of energy students use in their daily lives and what physical processes could produce it. P/NP or letter grading.

**17. Modern Physics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Corequisite: course 32. Photons, black-body radiation, photoelectric effect, uncertainty principle, Bohr atom, Schrödinger equation, hydrogen atom, and selected topics in atomic, solid-state, nuclear, and particle physics. P/NP or letter grading.

**18L. Modern Physics Laboratory (4)** Lecture, one hour; laboratory, six hours. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4AL, 4BL, 17. Experiments on radioactivity, scattering, Planck constant, superconductivity, superfluidity. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**32. Mathematical Methods (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, 1C (or 1AH, 1BH, 1CH), Mathematics 32A, 32B, 33A. Corequisite: Mathematics 33B. Vectors and fields; operators and transformations; matrices, tensors, and differential forms; ordinary differential equations and integral theorems; Fourier transform. P/NP or letter grading.

**88. Lower-Division Seminar: Current Topics in Physics (2)** Limited to freshmen/sophomores. Intensive exploration of a particular theme or topic based on current research. Consult Schedule of Classes for topics to be offered in a specific term. P/NP or letter grading. 89.

**Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors (1)** Laboratory, three hours. Corequisite: associated undergraduate lecture course in physics for life sciences majors. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of problem-solving skills and intuition in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

**98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors (1)** Laboratory, three hours. Corequisite: associated undergraduate lecture course in physics for physical sciences and engineering majors. Limited to Program for Excellence in Education and Research in Science (PEERS) students. Development of problem-solving skills and intuition in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**105A. Analytic Mechanics (4)** Lecture, three hours; discussion, one hour. Requisite: course 32. Corequisite: Mathematics 33B. Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear and nonlinear oscillations. P/NP or letter grading.

**105B. Analytic Mechanics (4)** Lecture, three hours; discussion, one hour. Requisite: course 105A. Conserved quantities, collisions and scattering, special relativity, non-inertial reference frames, rigid bodies, coupled oscillators, and normal modes. P/NP or letter grading.

**108. Optical Physics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110B. Interaction of light with matter; dispersion theory, oscillator strength, line widths, molecular scattering. Coherence theory, Kirchhoff formulation of diffraction theory, crystal optics, optical rotation, electro and magneto optical effects. Additional topics of fundamental or current interest. P/NP or letter grading.

**110A. Electricity and Magnetism (4)** Lecture, three hours; discussion, one hour. Requisite: course 32. Electrostatics and magnetostatics. P/NP or letter grading.

**110B. Electricity and Magnetism (4)** Lecture, three hours; discussion, one hour. Requisite: course 110A. Corequisite: course 105B. Maxwell's equations, electromagnetic waves, potential and fields, radiation, Lorentz invariance. P/NP or letter grading.

**112. Thermal Physics (4)** Lecture, three hours; discussion, one hour. Requisites: course 115A. Corequisite: course 115B. Fundamentals of thermodynamics and statistical mechanics. Classical and quantum ensembles. Simple applications including heat engines and pumps. Degenerate Fermi gases, Bose condensates, and blackbody radiation. P/NP or letter grading.

**114. Mechanics of Wave Motion and Sound (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A, 105B, Mathematics 32B, 33A, 33B. Vibrating systems and wave propagation in gases, liquids, and solids, including elements of hydrodynamics and elasticity. Applications in ultrasonics, low-temperature physics, solid-state physics, architectural acoustics. P/NP or letter grading.

**115A. Quantum Mechanics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 17, 32, 105A. Classical background. Basic ideas of quantum nature of light, wave-particle duality, Heisenberg uncertainty principle, Schrödinger equation. One-dimensional square well and harmonic oscillator problems. One-dimensional scattering, Formal theory, Hilbert spaces, and Dirac notation. P/NP or letter grading.

**115B. Quantum Mechanics (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Corequisite: course 105B. Three-dimensional problems. Central potentials. Hydrogen atom. Angular momentum and spin, identical particles, and Pauli exclusion principle. Electrons in electromagnetic field. Symmetries. P/NP or letter grading.

**115C. Quantum Mechanics (4)** Lecture, three hours; discussion, one hour. Requisite: course 115B. Time-independent perturbation theory, application to atomic spectra. Time-dependent perturbation theory. Fermi's golden rule. Scattering. Wentzel-Kramers-Brillouin (WKB) approximation. P/NP or letter grading.

**118. Electronics for Physical Measurements (4)** Lecture, three hours; laboratory, four hours. Requisites: courses 1A, 1B, 1C, 117, Mathematics 32A, 32B, 33A. Provides students with opportunity to apply basic knowledge of circuit design for purpose of building stand-alone circuits with function related to control or measurement. Examples of physics-oriented projects include radio-frequency detection and measurement of mechanical resonances of bar, FM transmitter, speed of sound using radio-frequency pulsed ultrasound, sun-following pointers, cosmic ray detector. P/NP or letter grading.

**122. Introduction to Plasma Science and Engineering (4)** (Same as Earth, Planetary, and Space Sciences M156 and Electrical and Computer Engineering M185.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 110B or Electrical and Computer Engineering 101A. Senior-level introductory course on electrodynamics of charged particles and their collective behavior in plasmas in laboratory, near-Earth space and astrophysical settings. Covers selected applications taken from fusion energy, space weather, materials processing, generation of coherent radiation and particle accelerators. Letter grading.

**123. Atomic Structure (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Theory of atomic structure. Interaction of radiation with matter. P/NP or letter grading.

**124. Nuclear Physics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Nuclear properties, nuclear forces, nuclear structure, nuclear decays, and nuclear reactions. P/NP or letter grading.

**126. Elementary Particle Physics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Introduction to physics of elementary particles. The four basic interactions: strong, electromagnetic, weak, and gravitational. Properties of baryons, mesons, quarks, and leptons; conservation laws, symmetries and broken symmetries; the Standard Model; experimental techniques; new physics at the new accelerators. P/NP or letter grading.

**127. General Relativity (4)** Lecture, three hours; discussion, one hour. Requisites: courses 32, 105B, 110A, 110B. Recommended: courses 115A, 115B, 115C. Introduction to general relativity. Principle of equivalence and curved spacetime, local inertial frames, vectors and three-dimensional surfaces in curved spacetime. Schwarzschild metric, perihelion precession, bending of light by sun, and gravitational redshift. Star-system applications, black holes, gravitational waves. Introduction to cosmology, including Robertson-Walker metric and expanding universe solution to Friedman equations. Dark energy and cosmological constant. P/NP or letter grading.

**128. Cosmology and Particle Astrophysics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 115A, 115B, 126. Introduction to cosmology and high-energy particle astrophysics, based on latest developments of both experiment and theory. Special emphasis on unified picture of universe that emerges from particle physics, astronomy, and cosmology. Extensive discussion of unsolved problems and future prospects to help students determine their opportunities in future. Letter grading.

**131. Mathematical Methods of Physics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Vectors and fields in space, linear transformations, matrices, and operators; Fourier series and integrals. P/NP or letter grading.

**132. Mathematical Methods of Physics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 131, Mathematics 32B, 33A, 33B. Functions of a complex variable, including Riemann surfaces, analytic functions, Cauchy theorem and formula, Taylor and Laurent series, calculus of residues, and Laplace transforms. P/NP or letter grading.

**140A. Introduction to Solid-State Physics (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 112. Introduction to basic theoretical concepts of solid-state physics with applications. Crystal symmetry; cohesive energy; diffraction of electron, neutron, and electromagnetic waves in a lattice; reciprocal lattice; phonons and their interactions; free electron theory of metals; energy bands. Letter grading.

**140B. Quantum States of Matter (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 112, 115A. Recommended: courses 115B, 115C, 140A. Introduction to various phases of matter that exhibit quantum mechanics on a macroscopic scale. Topics may include superconductivity, superfluidity, magnetism, density waves, and the integer quantum Hall effect. Landau's phenomenological theory of symmetry-breaking phase transitions, including the application of Ginzburg-Landau theory to superconductivity. Letter grading.

**144. Polymer Physics (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 105A, 110A, and 112 or Chemistry 110A. How physical properties of polymers can be derived from mathematical models of chains and coils. Comparison of these models to calculations based on random walk problem and used to predict mechanical characteristics of large molecules. Study of networks of polymers and polymeric fluids, with focus on their viscoelastic properties. Discussion of movement of individual polymers within melts. Study of examples of more complex structures, such as polymer fractals. Consideration of applications of this work to biology, with focus on their potential role in evolution and current hypotheses on origins of life. P/NP or letter grading.

**150. Physics of Charged-Particle and Laser Beams (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110A, 110B, 115A, 115B. Physics of charged-particle and laser beams presented as a unified subject. Basic physics of charged-particle beams, covering relativistic particle motion in electromagnetic fields, transverse focusing, acceleration mechanisms, linear and circular accelerators, and advanced topics. Some fundamentals of laser physics, including gain and broadening mechanisms, linear light optics, laser resonators, and advanced topics and applications. P/NP or letter grading.

**170A. Electronics for Physics Measurement (4)** (Formerly numbered 117.) Lecture, two hours; laboratory, four hours. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Hands-on experimental course to develop understanding of design principles in modern electronics for physics measurements. Broad introduction to analog and digital electronics from practical viewpoint, followed by examination of typical circuits for scientific instrumentation and study of methods of computer data acquisition and signal processing. Letter grading.

**170E. Introduction to Symbolic Computation (4)** Lecture, one hour; laboratory, three hours. Corequisite: course 105A. Students learn to use Mathematica or other programs to solve variety of mathematical problems that arise in physics. Use of skills developed to solve complicated systems, model behavior, and explore in greater depth other advanced physics topics. P/NP or letter grading.

**C170M. Machine Learning for Physical Sciences Laboratory (4)** (Formerly numbered 170M.) Lecture, two hours; laboratory, four hours. Requisites: courses 1A, 1B, 1C (or 1AH, 1BH, 1CH), Mathematics 32A, 33A, or equivalent. Preparation: some experience in programming using Python. Project-based course designed for students with no previous experience in machine learning to learn about methods and algorithms in machine learning and their application to scientific problems in physical sciences. Development of experience in compilation, analysis, and cleaning of data. Machine learning topics include classification, regression, dimensionality reduction, clustering, and kernel methods. Concurrently scheduled with course C270M. P/NP or letter grading.

**170N. Computational Physics and Astronomy Laboratory (4)** (Formerly numbered 180N.) Lecture, two hours; laboratory, four hours. Requisites: courses 105B, 110B, 112 (or Astronomy 115), 115B. Prior experience in working with computers is helpful but not required. Designed to give first-hand experience in solving physics and astronomy problems on computers. Project-based course, with projects selected from core areas of classical mechanics, electrodynamics, quantum physics, statistical physics, and astronomy. Introduction to problems and to required numerical methods in lectures, so students can write programs in one modern programming language of their choice (Python recommended) and carry out numerical experiments with it, with results documented in reports. P/NP or letter grading.

**180A. Nuclear Physics Laboratory (4)** Lecture, two hours; laboratory, four hours. Recommended: course 124. Students conduct experiments about cosmic ray counting and statistics, radioactive decay law measurement, beta decay spectrometer, and Compton scattering; perform independent data analyses of experimental data; and write scientific report for each experiment. P/NP or letter grading.

**180C. Solid-State Laboratory (4)** Lecture, two hours; laboratory, four hours. Recommended: course 140A. Laboratory experiments survey quantum and collective phenomena in solids, such as quantum oscillations, superconductivity, and ferroelectricity. Use of introduced methods to investigate bulk properties, such as magneto-transport, dielectric, and magnetic responses. P/NP or letter grading.

180D. Acoustics Laboratory (4) Lecture, two hours; laboratory, four hours. Recommended: courses 112, 114. Study of waves and sound propagation in different media. Students uncover various waves in different phases of matter, including gases, liquids, and superfluids. Description of experiments in terms of hydrodynamic theory. Students gain experience in basic electronics, amplifiers, speakers, microphones, cryogenics, and fast Fourier transforms. P/NP or letter grading.

**180E. Plasma Physics Laboratory (4)** Lecture, two hours; laboratory, six hours. Requisite: course 110B. Recommended: course M122. Investigation of plasma physics concepts through experiments using laboratory plasmas. Topics explored may include plasma breakdown and formation by cathode discharge and inductively-coupled electric fields, measurement of plasma properties using Langmuir probes, and excitation and measurement of plasma waves. Theory of operation and use of vacuum systems, electronics, pulsed high power sources, variety of measurement techniques, and data acquisition systems. P/NP or letter grading.

**180F. Elementary Particle Laboratory (4)** Lecture, two hours; laboratory, six hours. Requisites: courses 110A, 115B. Recommended: courses 18L, 126. Experience with computer programming, especially Python, is helpful but not required. Provides hands-on experience in measuring key properties of weak and electromagnetic interactions using cosmic ray muons. Provides exposure to common experimental techniques in particle physics. Overview of standard model, interaction of particles with matter, basic particle detection techniques, introductory probability and statistics, and analysis with Python and ROOT. P/NP or letter grading.

**180G. Soft Matter Laboratory (4)** (Same as Chemistry M120.) Lecture, 90 minutes; laboratory, four hours. Requisites: courses 110B, 115A. Students gain experience of conducting independent research in experimental biological physics. Construction of modern microscope. Use of microscope to image biological specimens. Students learn optics, diffraction, imaging, microscopy, computational physics, and/or fluorescent labeling. P/NP or letter grading.

**180Q. Quantum Optics Laboratory (4)** Lecture, two hours; laboratory, six hours. Requisite or corequisite: course 115C. Limited to junior/senior Astrophysics and Physics majors. Use of techniques of quantum optics to demonstrate concepts of quantum mechanics, including superposition, quantum measurement, hidden variable theories, and Bell's inequality. Examination and use of modern optics, including lasers, optics, fibers, polarization manipulation, and photon counting. Letter grading.

**C186. Neurophysics: Brain-Mind Problem (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 5A, 5B, and 5C, or 6A, 6B, and 6C, Chemistry 14A or 20A, Mathematics 3A, 3B, 3C, 33A. How does mind emerge from brain? Provides summary of basic biophysics of neurons, synapses, and plasticity. Introduction to commonly used experimental and theoretical techniques of measuring, quantifying, and modeling neural activity, and their relative strengths and weakness and use of them to understand link between neural circuits, their emergent neural dynamics, and behavior in example model systems. Discussion of mechanisms of interaction between neural circuits and their role in cognition, learning, and sleep. Computer laboratory component where students learn to write simple codes to quantify neural activity patterns. Concurrently scheduled with course C286. P/NP or letter grading.

**C187A. Biological Physics I: Life at Rest (4)** Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100 (or M140 or 165A). Equilibrium phenomena. Application of basic mechanics, optics, and thermodynamics to biological design: structure of skeleton, scaling of bone and muscle mass, swim bladders, and animal vision. Application of elementary statistical physics, electrostatics, and elasticity to structure of proteins, DNA, and biomembranes. Concurrently scheduled with course C287A. P/NP or letter grading.

**C187B. Biological Physics II: Life in Motion (4)** Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, C187A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100. Nonequilibrium phenomena. Application of mechanics, hydrodynamics, diffusion, and electrical transport to dynamical phenomena. Macroscopic phenomena: swimming, flying, thermoregulation, blood circulation, breathing, electrical transport along membranes. Physics of cells: Brownian motion, molecular motors, and cytoskeleton. Concurrently scheduled with course C287B. P/NP or letter grading.

**188. Special Courses in Physics (4)** Lecture, three hours; discussion, one hour. Limited to junior/senior Astrophysics and Physics majors. Departmentally sponsored temporary courses such as pilot courses or those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Physics (2)** Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**191. Variable Topics Research Seminars: Physics and Astronomy (4)** Seminar, three hours. Participating research seminar on advanced topics in physics. Reading, discussion, and development of culminating project. Content varies from year to year. May be repeated for credit by petition. P/NP or letter grading.

**192. Undergraduate Practicum in Physics (2 to 4)** Seminar, three hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. May be repeated for credit. P/NP or letter grading.

**192M. Methods and Application of Collaborative Learning Theory in Physical Sciences. (2 to 4)** Seminar, two hours; laboratory, six hours. Requisites: one course from 1A, 1B, 1C, 5A, 5B, 5C, or 131, course 192S (may be taken concurrently), and at least one term of prior experience in same course in which collaborative learning theory is practiced and refined under supervision of instructors. With instructor guidance, students apply pedagogical principles based on current education research, assist with the development of innovative instructional materials, and receive frequent feedback on their progress. May be repeated four times for credit. Letter grading.

**192S. Introduction to Collaborative Learning Theory and Practice (1)** (Formerly numbered 192S.) (Same as Atmospheric and Oceanic Sciences M192A, Chemistry M192E, Computer Science M192A, Life Sciences M192A, and Mathematics M192A.) Seminar, one hour. Training seminar for undergraduate students who are selected for learning assistant (LA) program. Exploration of current topics in pedagogy and education research focused on methods of learning and their practical application in small-group settings. Students practice communication skills with frequent assessment of and feedback on progress. Letter grading.

**193. Journal Club Seminars: Physics (2)** Seminar, one hour. Limited to undergraduate students. Seminars are linked to speaker-series seminars offered by department on weekly basis. Supplemental reading from literature on speaker's topic, as well as active participation and discussion to understand what kind of questions modern-day physicists actually ask and how they go about answering them. May be repeated for credit. P/NP grading.

**194. Research Group Seminars: Physics and Astronomy (1)** Research group meeting, one hour. Designed for undergraduate students who are part of research group/laboratory. Discussion of research of faculty members or students with regard to understanding methodology in field and laboratory equipment. May be repeated for credit. P/NP grading.

**196. Research Apprenticeship in Physics. (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors with overall 3.0 grade-point average. Entry-level research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

**197. Individual Studies in Physics. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198. Honors Research in Physics. (2 to 4)** Tutorial, 12 hours. Limited to juniors/seniors with overall 3.0 grade-point average. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Physics. (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**201Q. Modern Physics Research Areas (2)** Review of modern physics research areas, with emphasis on those actively pursued at UCLA. S/U grading.

**210A. Electromagnetic Theory (4)** Lecture, three hours; discussion, one hour. Boundary value problems in electrostatics and magnetostatics. Multipole expansions; dielectrics and macroscopic media. Maxwell equations and conservation laws. Wave guides and resonators; simple radiating systems. Letter grading.

**210B. Electromagnetic Theory (4)** Lecture, three hours; discussion, one hour. Electromagnetic potentials and Hertz vectors. Cylindrical waves. Spherical waves. Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges. Letter grading.

**213A. Advanced Atomic, Molecular, and Optical Physics (4)** Lecture, three hours. Requisite: course 221A. Atomic and molecular structure, light-matter interactions, density matrix representation, Jayne-Cummings Hamiltonian, and sample of current techniques. S/U or letter grading.

**213B. Advanced Atomic, Molecular, and Optical Physics (4)** Lecture, three hours. Requisite: course 221A (may be taken concurrently). Quantum optics, quantum entanglement, quantum information processing, quantum sensing, quantum communication. S/U or letter grading.

**213C. Molecular Structure (4)** Application of group theory to vibrational and electronic states of molecules. Molecular orbital theory. Raman effect. Angular momentum and coupling in molecules.

**215A. Statistical Physics (4)** Lecture, three hours; discussion, one hour. Microstates and macrostates, statistical ensembles, entropy and other thermodynamic functions, equilibrium, variational principles, functional integration methods. Applications: ideal gas, oscillators, rotors, elasticity, paramagnetism. Indistinguishable particles, Fermi/Dirac and Bose/Einstein distributions. Applications: electron gas, neutron stars, white dwarfs, Bose/Einstein condensation. Kinetics. Letter grading.

**215B. Advanced Statistical Mechanics (4)** Lecture, three hours. Symmetry characterization of phases of matter, phase transitions, Landau theory, order parameters. Applications: superfluidity, liquid crystals, superconductivity, Higgs mechanism. Scaling theory of critical phenomena, correlation functions, critical exponents, renormalization group methods. Goldstone models and topological defects, spin waves, sound waves, Kosterlitz-Thouless transition. S/U or letter grading.

**215D. Nonequilibrium Statistical Mechanics and Molecular Biophysics (4)** (Same as Chemistry M223C.) Lecture, three hours. Requisites: course 215A, or Chemistry C215B and C223B. Fundamentals of nonequilibrium thermodynamics and statistical mechanics applied to molecular biophysics. S/U or letter grading.

**220. Classical Mechanics (4)** Lecture, three hours; discussion, one hour. Lagrangian formulation, action, symmetries, conservation laws; Hamiltonian formulation, canonical structure, symmetries. Applications: harmonic oscillators, rotating solids. Special relativistic mechanics, Maxwell field, and dynamics of charged particles. Nonlinear dynamics and global behavior. Letter grading.

**221A. Quantum Mechanics (4)** Lecture, four hours; discussion, one hour. Fundamentals of quantum mechanics, Hilbert spaces, correspondence principle, quantum dynamics, and rotations and angular momentum. Special topics such as Bell inequalities, and aspects of quantum information. Letter grading.



**221B. Quantum Mechanics (4)** Lecture, four hours; discussion, one hour. Requisite: course 221A. Symmetries and conservation laws, perturbation theory, scattering theory. Special topics such as Berry's phase and related geometric and topological aspects. Letter grading.

**221C. Quantum Mechanics (4)** Lecture, four hours. Requisites: courses 221A, 221B. Quantum theory of radiation, introduction to relativistic quantum mechanics, second quantization, elements of many-body theory, and special topics. S/U or letter grading.

**222A. Plasma Physics (4)** Lecture, three hours. Properties of Coulomb gas with and without magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types. S/U or letter grading.

**222B. Plasma Physics (4)** Lecture, three hours. Properties of Coulomb gas with and without magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types. S/U or letter grading.

**222C. Plasma Physics (4)** Lecture, three hours. Properties of Coulomb gas with and without magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types. S/U or letter grading.

**226A. Elementary Particle Physics (6)** Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A, 230B (230A, 230B may be taken concurrently). Modern theories of elementary particle physics beginning with symmetry principles and conserved quantities, classic V-A theory of weak interactions, gauge field theories (Abelian and non-Abelian), spontaneous symmetry breaking,  $SU(2) \times U(1)$  electroweak interactions of leptons, quarks,  $W$ s,  $Z^0$  and  $\gamma$ , quark theory of hadrons and quantum chromodynamics. S/U or letter grading.

**226B. Elementary Particle Physics (6)** Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A, 230B (230A, 230B may be taken concurrently). Modern theories of elementary particle physics beginning with symmetry principles and conserved quantities, classic V-A theory of weak interactions, gauge field theories (Abelian and non-Abelian), spontaneous symmetry breaking,  $SU(2) \times U(1)$  electroweak interactions of leptons, quarks,  $W$ s,  $Z^0$  and  $\gamma$ , quark theory of hadrons and quantum chromodynamics. S/U or letter grading.

**226C. Elementary Particle Physics (6)** Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A, 230B (230A, 230B may be taken concurrently). Modern theories of elementary particle physics beginning with symmetry principles and conserved quantities, classic V-A theory of weak interactions, gauge field theories (Abelian and non-Abelian), spontaneous symmetry breaking,  $SU(2) \times U(1)$  electroweak interactions of leptons, quarks,  $W$ s,  $Z^0$  and  $\gamma$ , quark theory of hadrons and quantum chromodynamics. S/U or letter grading.

**226D. Beyond the Standard Model (4)** Lecture, three hours. Requisites: courses 226A, 226B, 226C, 230A, 230B, 230C. Discussion of possible extensions of the current standard model of electroweak and strong interactions, including axions, Technicolor, grand unified theories, supersymmetry, supergravity, and superstrings. S/U grading.

**226E. Particle Astrophysics: Exploring Earliest and Extreme Universe (4)** Lecture, three and one half hours. Requisites: courses 210A, 210B, 221A, 221B. Recommended: course 226A. Introduction to high-energy astrophysics and discussion of latest developments in both experimentation and theory. Special emphasis on unified picture of universe that emerges from particle physics, astronomy, and cosmology. S/U or letter grading.

**230A. Quantum Field Theory (6)** Lecture, four hours. Requisite: course 221C or equivalent and knowledge of basic special relativity. Introduction to relativistic quantum field theory starting from first principles. Topics include particles as unitary representations of Poincaré group; fields as finite-dimensional representations of Lorentz group; discrete space-time symmetries; quantization of free scalar, spinor, and gauge fields; Casimir effect; classical interacting scalar, spinor, and gauge fields; and LSZ formalism for calculation of S-matrix from quantum field theory correlators. S/U or letter grading.

**230B. Quantum Field Theory (6)** Lecture, four hours. Requisite: course 230A. Perturbative methods for quantization of interacting quantum field theories. Topics include functional methods in scalar field theory, perturbation theory for scalar field theory, Feynman rules, UV regularization and renormalization, perturbation theory for quantum electrodynamics (QED), Ward identities, renormalization of QED, and anomalies in QED. S/U or letter grading.

**230C. Quantum Field Theory (6)** Lecture, four hours. Requisite: course 230B. Quantization of non-Abelian gauge theories. Topics include functional integral quantization of Yang-Mills fields, Faddeev-Popov ghosts, perturbative expansion of non-Abelian gauge theories and Feynman rules, background field method, one-loop renormalization of Yang-Mills theory, asymptotic freedom, global internal symmetries, Ward identities, non-linear realizations, Higgs mechanism, anomalies in non-Abelian gauge theories. S/U or letter grading.

**230D. Quantum Field Theory (4)** Lecture, four hours. Requisites: courses 221A, 221B, 221C. Topics in modern quantum field theory, including solitons, instantons, and other topological defects, large N methods, finite temperature field theory, lattice field theory, effective field theory methods and chiral Lagrangians, conformal field theory, and topological aspects of anomalies. S/U or letter grading.

**231A. Methods of Mathematical Physics (4)** Lecture, four hours. Widely used mathematical methods and their applications to physics including basic topology, complex analysis, Fourier analysis, elliptic functions, linear differential operators, Green functions, and special functions associated with eigenvalue problems of ordinary and partial differential operators on flat and curved spaces. Letter grading.

**231B. Methods of Mathematical Physics (4)** Lecture, four hours. Requisites: courses 221A, 231A, or equivalent. Widely used methods of group theory with applications to physics, including matrix Lie groups and Lie algebras, crystallographic groups, representations of groups and Lie algebras, tensors, spinors, roots, weights, structure of simple Lie algebras, and homogeneous spaces. S/U or letter grading.

**231C. Methods of Mathematical Physics (4)** Lecture, three hours. Not open for credit to students with credit for Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods. S/U or letter grading.

**232A. Relativity (4)** Special and general theories, with applications to elementary particles and astrophysics.

**232B. Relativity (4)** Special and general theories, with applications to elementary particles and astrophysics.

**232C. Special Topics in General Relativity (4)** Lecture, four hours. S/U or letter grading.

**236. Geometry and Physics (4)** (Same as Mathematics M217.) Lecture, three hours. Interdisciplinary course on topics at interface between physics quantum fields and superstrings and mathematics of differential and algebraic geometry. Topics include supersymmetry, Seiberg/Witten theory, conformal field theory, Calabi/Yau manifolds, mirror symmetry and duality, integrable systems. S/U grading.

**237A. String Theory (4)** Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A. Historical introduction to string theory, including classical bosonic string and its symmetries, light cone quantization, covariant quantization, conformal field theory, Polyakov path integral, tree level amplitudes, and loop amplitudes. S/U grading.

**237B. String Theory (4)** Lecture, four hours. Requisite: course 237A. Current topics in string theory, which may include anti-de Sitter/conformal field theory (AdS/CFT) correspondence, string dualities, compactification, and connections to quantum information. S/U or letter grading.

**241A. Solid-State Physics (4)** Lecture, four hours. Requisites: courses 140A, 140B, 215A, 221C. Symmetry, free electrons, electrons in periodic potential, experimental measurement of band structure and Fermi surface parameters, cohesive energy, lattice vibrations, thermal properties. Letter grading.

**241B. Solid State Physics (4)** Lecture, three hours. Requisite: course 241A. Transport theory with applications, electron/electron interactions. S/U or letter grading.

**241C. Solid State Physics (4)** Lecture, three hours. Requisite: course 241B. Semiconductors, magnetism, phase transitions, superconductivity. S/U or letter grading.

**242A. Advanced Solid-State Theory (4)** Requisites: courses 241A, 241B, 241C (may be taken concurrently). Many body methods in solid-state physics.

**242B. Advanced Solid-State Theory (4)** Requisites: courses 241A, 241B, 241C (may be taken concurrently). Many body methods in solid-state physics.

**242C. Topology of Condensed Matter (4)** Lecture, four hours. Requisites: courses 241A, 241B, 241C, 242A, 242B. Covers advanced topics in condensed matter physics with focus on topology (both in real and momentum spaces). Systematic exposition of Berry phases and Chern numbers, along with underlying differential-geometric structure. Concrete practical examples including Su-Schrieffer-Heeger model for polyacetylene and Majorana modes in one-dimensional superconductors, quantum Hall effects and topological insulators in two and three dimensions. Insights drawn from quantum pumping and bulk-edge correspondence especially emphasized. Range of topics based on topological defects in magnetic and superconducting systems and

exploration of notions of topology for quantum transport and quantum information applications. Focus on aspects whose robustness is rooted in topological characteristics. S/U or letter grading.

**243A. Special Topics in Solid-State Physics: Disordered Systems (4)** Lecture, three hours. S/U or letter grading.

**243B. Special Topics in Solid-State Physics: Magnetic Resonance (4)** Lecture, three hours. S/U or letter grading.

**243C. Special Topics in Solid-State Physics: Quantum Criticality (4)** Lecture, three hours. S/U or letter grading.

**243D. Special Topics in Solid-State Physics: Magnetism (4)** Lecture, three hours. S/U or letter grading.

**243E. Special Topics in Solid-State Physics: Superconductivity (4)** Lecture, three hours. S/U or letter grading.

**243F. Special Topics in Solid-State Physics: Macromolecules (4)** Lecture, three hours. S/U or letter grading.

**243G. Special Topics in Solid-State Physics: Nanosystems (4)** Lecture, three hours. S/U or letter grading.

**243H. Special Topics in Solid-State Physics: Optical Interactions (4)** Lecture, three hours. S/U or letter grading.

**243I. Special Topics in Solid-State Physics: Nonlinear Optics (4)** Lecture, three hours. S/U or letter grading.

**243J. Special Topics in Solid-State Physics: Topological Phases (4)** Lecture, three hours. S/U or letter grading.

**243K. Special Topics in Solid-State Physics: Low-Temperature Physics (4)** Lecture, three hours. S/U or letter grading.

**243L. Condensed Matter Physics of Cells (4)** (Same as Biomathematics M243.) Seminar, four hours. Designed for graduate students. Basic paradigms of condensed matter physics and applications to biophysical modeling. S/U or letter grading.

**243M. Statistical Mechanics of Living Systems from Active Matter to Immune System (2 to 4)** Seminar, four hours. Exploration of how concepts and models from statistical physics can be used to gain quantitative and intuitive understanding of biological phenomena. Introduction to analytical and computational methods for describing stochastic complex systems, with application to problems in mechanics and dynamics of active matter and evolutionary dynamics of immune system. S/U or letter grading.

**245. Quantum Computation (4)** Lecture, three hours; discussion, one hour. Requisite: course 115A. Recommended requisites: courses 115B, 115C, 131. Quantum circuits, quantum Fourier transform, quantum algorithms, physical implementations and Jaynes-Cummings model. May not be repeated for credit. Letter grading.

**250. Introduction to Acceleration of Charged Particles (4)** Lecture, three hours. Requisites: courses 210A, 210B, 215A. Principles of charged-particle acceleration, including principles of synchrotrons and storage rings, beam parameter determination, statistical behavior of beams and beam cooling techniques, synchrotron light sources, colliding beam storage rings, medical accelerators, and free electron lasers.

**260. Seminar: Problems in Plasma Physics (4)** Seminar, four hours. S/U or letter grading.

**261. Seminar: Special Problems in Theoretical Physics (4)** Seminar, four hours. S/U or letter grading.

**262. Seminar: Physics of the Solid State. (2 to 4)** Seminar, three hours. S/U or letter grading.

**264. Seminar: Advanced Physical Acoustics (4)** Seminar, four hours. S/U or letter grading.

**266. Seminar: Propagation of Waves in Fluids (2 to 4)** Seminar, three hours. S/U or letter grading.

**268. Seminar: Spectroscopy (2 to 4)** Seminar, three hours. S/U or letter grading.

**269A. Seminar: Nuclear Physics (2 to 4)** Seminar, three hours. S/U or letter grading.

**269B. Seminar: Elementary Particle Physics (2 to 4)** Seminar, three hours. S/U or letter grading.

**269C. Seminar: Accelerator Physics (2 to 4)** Seminar, three hours. Physics principles governing design and performance analysis of particle accelerators, using existing accelerators as examples and emphasizing interplay among design goals, component performance, and operational experience. S/U grading.

**269D. Strobe Seminar Series: Frontiers in Imaging and Microscopy (2)** Seminar, one hour. Discussion with leading figures of frontiers of imaging and microscopy fields, including multi-dimensional electron microscopy at atomic resolution, real-time functional three-dimensional X-ray imaging of advanced materials, advanced optical nano-imaging, and integrative approaches and underpinning technologies for different imaging modalities. May be repeated twice for credit. S/U grading.

**C270M. Machine Learning for Physical Sciences Laboratory (4)** Lecture, two hours; laboratory, four hours. Requisites: courses 1A, 1B, 1C (or 1AH, 1BH, 1CH), Mathematics 32A, 33A, or equivalent. Preparation: some experience in programming using Python. Project-based course designed for students with no previous experience in machine learning to learn about methods and algorithms in machine learning and their application to scientific problems in physical sciences. Development of experience in compilation, analysis, and cleaning of data. Machine learning topics include classification, regression, dimensionality reduction, clustering, and kernel methods. Concurrently scheduled with course C170M. S/U or letter grading.

**C286. Neurophysics: Brain-Mind Problem (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 5A, 5B, and 5C, or 6A, 6B, and 6C, Chemistry 14A or 20A, Mathematics 3A, 3B, 3C, 33A. How does mind emerge from brain? Provides summary of basic biophysics of neurons, synapses, and plasticity. Introduction to commonly used experimental and theoretical techniques of measuring, quantifying, and modeling neural activity, and their relative strengths and weakness and use of them to understand link between neural circuits, their emergent neural dynamics, and behavior in example model systems. Discussion of mechanisms of interaction between neural circuits and their role in cognition, learning, and sleep. Computer laboratory component where students learn to write simple codes to quantify neural activity patterns. Concurrently scheduled with course C186. S/U or letter grading.

**C287A. Biological Physics I: Life at Rest (4)** Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100 (or M140 or 165A). Equilibrium phenomena. Application of basic mechanics, optics, and thermodynamics to biological design: structure of skeleton, scaling of bone and muscle mass, swim bladders, and animal vision. Application of elementary statistical physics, electrostatics, and elasticity to structure of proteins, DNA, and biomembranes. Concurrently scheduled with course C187A. S/U or letter grading.

**C287B. Biological Physics II: Life in Motion (4)** Lecture, three hours. Enforced requisites: courses 105A, 110A, 115A, C287A, Chemistry 110A, Molecular, Cell, and Developmental Biology 100. Nonequilibrium phenomena. Application of mechanics, hydrodynamics, diffusion, and electrical transport to dynamical phenomena. Macroscopic phenomena: swimming, flying, thermoregulation, blood circulation, breathing, electrical transport along membranes. Physics of cells: Brownian motion, molecular motors, and cytoskeleton. Concurrently scheduled with course C187B. S/U or letter grading.

**290. Research Tutorial: Plasma Physics (2, 4)** Three terms required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff and students directed toward problems of current research interest in plasma physics group, both experimental and theoretical. May be repeated for credit. S/U grading.

**291. Research Tutorial: Elementary Particle Theory. (2, 4)** Requisites: courses 226A, 230A, 230B. Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

**292. Research Tutorial: Spectroscopy, Low-Temperature, and Solid-State Physics (2, 4)** Required of each graduate student doing research in these fields, ordinarily during second or third year. Seminar and discussion by staff and students on problems of current research interest in spectroscopy, low-temperature, and solid-state physics. May be repeated for credit. S/U grading.

**293. Research Tutorial: Current Topics in Physics (2)** Lecture, one hour. Seminar and discussion by staff and students on current topics in physics, both experimental and theoretical (topics not limited to one field of physics). Strongly recommended for graduate students in physics. May be repeated for credit. S/U grading.

**294. Research Tutorial: Accelerator Physics (2 to 4)** Lecture, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in accelerator physics. May be repeated for credit. S/U grading.

**295. Research Tutorial: Soft Matter/Biological Physics (2)** Tutorial, one hour. Required of each graduate student doing research in this field. One-hour presentation by students either on their ongoing research or on agreed on topic. Students answer critical questions and participate in critical examination of research. May be repeated for credit. S/U grading.

**296. Research Topics in Physics (2)** Advanced study and analysis of current topics in physics. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**490. Scientific Writing (2)** Seminar, 90 minutes. Practical guidelines for improved scientific writing and oral presentation. Writing of several short papers with subsequent analysis in class. Short blackboard and/or viewgraph presentations. Topics vary. S/U grading.

**495. Teaching College Physics (2)** Seminar, two hours; multi-day intensive training at beginning of Fall Quarter. Required of all new teaching assistants. Special course for teaching assistants designed as an introduction to teaching college physics, with emphasis on applying discussed techniques in classroom. Ideas and skills learned are evaluated in the sections of each teaching assistant. May be repeated for credit. S/U grading.

**596. Directed Individual Studies (2 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.

**597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examinations (4)** Tutorial, to be arranged. May be repeated twice for credit. S/U grading.

**598. Master's Thesis Research and Writing (4)** Tutorial, to be arranged. May be repeated twice for credit. S/U or letter grading.

**599. PhD Research and Writing (4 to 12)** Tutorial, to be arranged. May be repeated for maximum of 18 units. S/U grading.

## Quantum Science and Technology Courses

### Graduate

**M205. Quantum Programming (4)** (Same as Computer Science M238.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 115A. History of quantum computing; notion of qubit; four postulates that provide interface to quantum mechanics; concepts of quantum circuit and universal gate set; quantum teleportation; superdense coding; no-cloning theorem; suite of fundamental quantum algorithms including Shor's algorithm, Grover's algorithm, and quantum approximate optimization algorithm; several quantum programming languages and how they compare;

quantum simulators; quantum compilers; quantum error correction; quantum advantage. Students implement several quantum algorithms in multiple languages and run them on both simulators and quantum computer. Letter grading.

**402. Quantum Information (4)** Lecture, three hours; discussion, one hour. Requisite: Physics 245. Density matrix evolution, decoherence, characterization of quantum states, distance measures between quantum states, fidelity, quantum error correction, entropy and information, and quantum information theory. May not be repeated for credit. Letter grading.

**403. Theory of Quantum Devices (4)** Lecture, four hours. Requisites: course 402, Physics 245. Study of advanced theories, with some elements of quantum transport and advanced many-body physics. Introduction and comparison of different types of physical building blocks available for quantum computing. Addresses practical issues, such as scalability and comparison between different physical platforms and associated devices. Letter grading.

**410. Quantum Optics Laboratory (4)** Laboratory, eight hours. Limited to Master of Quantum Science and Technology students. Examination and use of modern optics, including lasers, optics, fibers, polarization manipulation, and photon counting. Use of techniques of quantum optics to demonstrate concepts of quantum mechanics, including superposition, quantum measurement, hidden variable theories, and Bell's inequality. Application of quantum optics to quantum information science. Letter grading.

**411. Ensemble Quantum Computing Laboratory (4)** Laboratory, four to eight hours. Limited to Master of Quantum Science and Technology students. Introduction to dynamics of ensembles of quantum mechanical spins, theoretical description in language of density matrices, and experimental techniques using nuclear magnetic resonance to prepare, manipulate, and measure their properties. Letter grading.

**412. Solid State Quantum Computing Laboratory (4)** Laboratory, four to eight hours. Requisites: courses 410, 411. Introduction to materials, devices, and techniques of semiconductor-based qubit technology. Students choose total of 10 weeks of laboratory modules from among following list according to their interests and availability: semiconductor device processing and metrology; transmission electron microscopy (TEM); pulsed control of NV-centers in diamond; quantum optics and single photon interferometry; quantum key distribution and quantum random number generation; quantum zeno effects. Letter grading.

**597. Master of Quantum Science and Technology Comprehensive Examination Preparation (4)** Tutorial, to be arranged. Limited to Master of Quantum Science and Technology students. Students conduct an independent research project in the field of quantum science and technology in a supervised setting, either a research group at UCLA (or other affiliated and approved university setting) or through an internship at a company, national laboratory, or similar institution. S/U grading.

# Physics and Biology in Medicine

## Physics and Biology in Medicine Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Biomedical Physics (2 to 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**200A. Physics and Chemistry of Nuclear Medicine (4)** Lecture, three hours; discussion, one hour. Nuclear structure, statistics of radioactive decay, nuclear radiations and their interaction with matter, nuclear decay processes, nuclear reactions, and compartment models. Physical and chemical properties of radioactive preparations used in nuclear medicine. Basic principles of nuclear medicine imaging, SPECT, and PET. S/U or letter grading.

**200B. Nuclear Medicine Instrumentation (4)** Lecture, one hour; laboratory, three hours. Requisite: course 200A. Introduction to nuclear medicine instrumentation, including well ionization chambers, probe and well scintillation detectors, scintillation cameras, and single photon and positron emission computed tomography. S/U or letter grading.

**201. Medical Radiation Accelerator Design (4)** Lecture, three hours. Requisite: course 216. Overview of physical principles involved in design of current particle accelerators (electron, proton, heavy particle) and analysis of characteristics of current accelerators and facility design. S/U or letter grading.

**202A. Applications of Medical Physics to Clinical Problems: Nuclear Medicine (4)** Clinic, four hours. Requisite: course 200B. Selected studies in clinical use of radioisotopes. S/U or letter grading.

**202B. Applications of Medical Physics to Clinical Problems: Diagnostic Radiology (1)** Clinic, one hour. Requisite: course 205. Clinical medical physics in radiological imaging rotation covering variety of diagnostic imaging modalities. Students gain experience in performing acceptance testing and annual surveys, establishing and maintaining modality-specific quality control program, obtaining modality-specific accreditation, radiation shielding design and calculation, patient dose monitoring, and patient dose calculation. S/U grading.

**202C. Applications of Medical Physics to Clinical Problems: Radiation Therapy (4)** Clinic, four hours. Requisites: courses 203, 204, 208B, 221. Selected studies in clinical use of radioisotopes. S/U grading.

**203. Physics of Radiation Therapy (4)** Lecture, three hours; discussion, one hour. Requisite: course 216. Radiation quantities and units. Radiation dosimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. Calibration of radiation therapy equipment. Letter grading.

**204. Introductory Radiation Biology (4)** Lecture, four hours. Effect of ionizing radiation on chemical and biological systems. S/U or letter grading.

**205. Physics of Diagnostic Radiology (4)** Lecture, three hours; laboratory, one hour. Production of X rays, basic interactions between X rays and matter, X-ray system components, physics principles of medical radiography, radiographic image quality, fluoroscopy, image intensifiers, special procedures, X-ray protection. Laboratory experiments illustrate basic theory. S/U or letter grading.

**206. Advanced Instrumentation (4)** Lecture, three hours; discussion, one hour. Requisite: course 205. Introduction to recent advances in digital diagnostic imaging systems, with topics centered on instrumentation including digital subtraction angiography (DSA) methods of producing three-dimensional images. S/U or letter grading.

**207. Monte Carlo Methods with Applications for Radiological Sciences (4)** Lecture, two hours; laboratory, one hour. Requisites: courses 200A, 205, 216. Introduction to Monte Carlo methods, with application to radiation transport of charged and uncharged particles. Specific applications in radiological sciences. Letter grading.

**208A. Medical Physics Laboratory: Medical Imaging (4)** Discussion, two hours; laboratory, four hours. Requisite: course 205. Hands-on experience performing acceptance testing and quality control checks of imaging equipment such as fluoroscopy, digital subtraction angiography, mammography, ultrasound, magnetic resonance imaging, computed tomography, and computed radiography. S/U or letter grading.

**208B. Medical Physics Laboratory: Radiation Therapy (4)** Discussion, two hours; laboratory, four hours. Requisite: course 203. Hands-on experience calibrating treatment planning and radiation therapy equipment. S/U or letter grading.

**209. Signal and Image Processing for Biomedicine (4)** (Same as Bioengineering M209.) Lecture, four hours; laboratory, four hours. Preparation: basic calculus or linear algebra and undergraduate probability. Mathematics and statistical fundamentals prevalent in biomedical physics studies. Notion and basic descriptions of linear shift-invariance and point spread functions in continuous and discrete time. Sampling theory and Fourier analysis. Signal representation of vector spaces, projection theorem, and least-squares approximations. Discussion of signal subspace methods, correlation and independence, principal component analysis, and independent component analysis. Basic ideas in inverse problems and optimization. Application in medical and signal processing. Development of geometric and informatics intuitions behind mathematics and statistics. Light derivations and MATLAB programming. S/U or letter grading.

**210. Computer Vision in Medical Imaging (4)** Lecture, three hours; discussion, one hour. Recommended requisites: Mathematics 155, Program in Computing 10A. Study of image segmentation, feature extraction, object recognition, classification, and visualization with biomedical applications. Topics include region-growing, edge detection, mathematical morphology, clustering, neural networks, and volume rendering in lectures, case studies, and programming projects. S/U or letter grading.

**211. Medical Ultrasound (4)** Lecture, 90 minutes; laboratory, two hours. Preparation: one calculus course. Production of real-time ultrasound images, transducer modeling and design, Doppler and color flow instrumentation, bio-hazards of ultrasound, ultrasound phantom design, and ultrasound tissue characterization techniques. Laboratory included. S/U or letter grading.

**212. Biochemical Basis of Positron-Emission Tomography (PET) (4)** Lecture, three hours; discussion, one hour. Introduction to biochemical processes and application of radioisotopes to study metabolism noninvasively by positron-emission tomography (PET). Validation of kinetic models to derive quantitative information from PET. Introduction to clinical and experimental application of PET. S/U or letter grading.

**213. Quantitative Autoradiography (4)** Lecture, three hours; discussion, one hour. Application of quantitative autoradiography for estimating brain and heart functions. Topics include 2-deoxyglucose method for metabolic rate; iodoantipyrine method for blood flow; amino acid method for protein synthesis; quantitative receptor autoradiography; neuroanatomy and neurophysiology of autoradiogram and PET scan interpretation. S/U or letter grading.

**214. Medical Image Processing Systems (4)** Lecture, three hours; discussion, one hour. Requisites: courses 209, 210. Advanced image processing and image analysis techniques applied to medical images. Discussion of approaches to computer-aided diagnosis and image quantitation, as well as application of pattern classification techniques (neural networks and discriminant analysis). Examination of problems from several imaging modalities (CT, MR, CR, and mammography). S/U or letter grading.

**215. Breast Imaging Physics and Instrumentation (1)** Lecture, one hour. Requisite: course 205. Special requirements of mammography, design of dedicated mammography X-ray units from generators and tubes. Stereotactic biopsy units, cost/benefit controversy of screening mammography, digital mammography, tomosynthesis and Mammography Quality Standards Act (MQSA) regulations. S/U grading.

**216. Fundamentals of Dosimetry (4)** Lecture, three hours; laboratory, one hour. Review of fundamental interactions of radiation and matter and introduction to fundamentals of radiation dosimetry. Overview of dosimetry instrumentation as well as radiation sources. S/U or letter grading.

**217. Statistics and Data Analysis in Biomedical Physics (4)** Lecture, four hours. Requisites: Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Introduction to computer-based statistical concepts, data analysis, and experimental design within biomedical physics research. Standard statistical packages and various statistical computing algorithms on relevant data sets within radiological sciences. Letter grading.

**218. Radiologic Functional Anatomy (4)** Lecture, three hours; discussion, one hour. Introduction to human anatomy, cell biology, and physiology as visualized through microscopy, molecular imaging, radiography, CT, MRI, ultrasonography, PET, and SPECT. Letter grading.

**219. Principles and Applications of Magnetic Resonance Imaging (4)** (Same as Bioengineering M219.) Lecture, three hours; discussion, one hour. Basic principles of magnetic resonance (MR), physics, and image formation. Emphasis on hardware, Bloch equations, analytic expressions, image contrast mechanisms, spin and gradient echoes, Fourier transform imaging methods, structure of pulse sequences, and various scanning parameters. Introduction to advanced techniques in rapid imaging, quantitative imaging, and spectroscopy. Letter grading.

**220A. Laboratory Rotations in Biomedical Physics: Biophysics (2)** Laboratory, two hours. Laboratory projects to provide students with introduction to field. One oral and one written presentation required. S/U grading.

**220B. Laboratory Rotations in Biomedical Physics: Medical Imaging (2)** Laboratory, two hours. Laboratory projects to provide students with introduction to field. One oral and one written presentation required. S/U grading.

**220C. Laboratory Rotations in Biomedical Physics: Therapeutic Medical Physics (2)** Laboratory, two hours. Laboratory projects to provide students with introduction to field. One oral and one written presentation required. S/U grading.

**220D. Laboratory Rotations in Biomedical Physics: Radiation Biology and Experimental Radiation Therapy (2)** Laboratory, two hours. Laboratory projects to provide students with introduction to field. One oral and one written presentation required. S/U grading.

**221. Applied Health Physics (4)** Lecture, three hours; discussion, one hour. Requisite: course 216. Basics of radiation safety as applied to medical applications. Introduction to all regulatory issues pertaining to medical uses of radioactivity. Letter grading.

**222. Advances in Medical Magnetic Resonance: Clinical MR Spectroscopy and Fast MRI Techniques (4)** Lecture, three hours; laboratory, one hour. Requisite: course 219. Basic principles of NMR spectroscopy, localized spectroscopic sequences on wholebody environment, single/multishot localization, water/fat suppression, chemical shift imaging sequences, processing with multidimensional Fourier transforms, gradient/spin-echo based echo-planar imaging, diffusion/perfusion imaging techniques. Letter grading.

**223. Seminar: Radiation Biology (4)** Seminar, four hours. Exploration of physiologic and molecular mechanisms that impact on response of normal and malignant tissues to ionizing radiation, with particular emphasis on critical and high in-depth analysis of approaches through which such responses can be modified in therapeutic setting. Understanding of rationale for integrating biological information into process of treatment planning and delivery. S/U grading.

**227. Human Disease: Current and Future Role of Biomedical Physics (4)** Lecture, three hours; discussion, one hour. Present and future roles of biomedical physics in diagnosis and treatment of human disease, with focus on interdisciplinary nature of this field. Exploration of two diseases in depth with detailed description of roles of physics-based diagnostic imaging and therapeutic options for each disease. Description of current and future technologies, as well as techniques that exploit interaction between diagnosis and therapy. Letter grading.

**229. Advanced Topics in Magnetic Resonance Imaging (4)** (Same as Bioengineering M229.) Lecture, four hours. Requisite: course M219. Designed for students interested in pursuing research related to development or translation of new magnetic resonance imaging (MRI) technique. Basic tools and understanding of recent MRI developments that have had high impact on field, involve novel pulse sequence design or image reconstructions, and enable imaging of anatomy or function in way that surpasses what is currently possible with any modality. Topics include in-depth sequence simulation, RF pulse design, rapid image acquisition, parallel imaging, compressed sensing, image reconstruction and processing, motion encoding and compensation, chemical-shift imaging and understanding, and understanding/avoiding artifacts. Programming exercises in MATLAB to provide hands-on experience. Letter grading.

**231. Advanced Treatment Planning in Radiation Therapy (3)** Lecture, four hours. Enforced requisites: courses 203, 216. Designed to provide theoretical and practical understanding of treatment planning techniques utilized in radi-

ation therapy. Topics include clinical treatment planning work flow, general planning principles and strategies, and specific considerations for various treatment delivery modalities and advanced treatment techniques. Detailed discussion on dose calculation algorithms and inversed planning and optimization. Clinical treatment planning demonstration using commercial treatment planning systems used to provide practical understanding of clinical applications and implementation. S/U or letter grading.

**232. Image Guided Radiation Therapy (4)** Lecture, four hours. Requisites: courses 203, 216. Designed to provide students theoretical and practical understanding of processes and equipment used for image guided radiation therapy. Emphasis on in-room imaging systems, including their operating principles, manufacturing, workflows, and quality assurance. Detailed discussions of hardware, image acquisition, and image processing provide understanding of theoretical and practical benefits and challenges of each technology. Discussion of clinical workflow and quality assurance to provide more practical information to understand clinical value and implementation challenges for each technology. S/U or letter grading.

**236. Contrast Mechanisms and Quantification in Magnetic Resonance Imaging (4)** (Formerly numbered 225.) (Same as Bioengineering M236.) Lecture, four hours. Requisite: course M219. Introduction to magnetic resonance contrast mechanisms and quantification techniques in magnetic resonance imaging. Topics include exogenous and endogenous contrast mechanisms, measuring tissue perfusion and permeability, advanced diffusion and q-space analysis, chemical exchange and magnetization transfer imaging, and relaxometry. Letter grading.

**248. Introduction to Molecular Imaging (4)** (Same as Bioengineering M248 and Pharmacology M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of molecular imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

**260A. Seminar: Biomedical Physics (1)** Seminar, one hour. Joint critical study by students and instructors in fields of knowledge pertaining to biomedical physics. Periodic contributions by visiting scientists. Discussion of research in progress. Student presentations required in spring term. May be repeated. S/U grading.

**260B. Seminar: Biomedical Physics (1)** Seminar, one hour. Joint critical study by students and instructors in fields of knowledge pertaining to biomedical physics. Periodic contributions by visiting scientists. Discussion of research in progress. Student presentations required in spring term. May be repeated. S/U grading.

**260C. Seminar: Biomedical Physics (1)** Seminar, one hour. Joint critical study by students and instructors in fields of knowledge pertaining to biomedical physics. Periodic contributions by visiting scientists. Discussion of research in progress. Student presentations required in spring term. May be repeated. Letter grading.

**268. Radiopharmaceutical Chemistry and Technologies (4)** Lecture, two hours; discussion, two hours. Introduction to advanced concepts in chemistry of radiopharmaceuticals and technologies for radiopharmaceutical production and analysis. Areas of focus are (1) radiochemistry with fluorine-18 and other isotopes, (2) technologies for synthesis automation and optimization, (3) analytical instrumentation and tools in radiochemistry, and (4) PET tracer design and development. Introduction to multistep process of target identification, tracer design, radiosynthesis development, in vitro and in vivo tracer evaluation, radiochemistry automation for routine production, and preparation of clinical grade doses (as prerequisite for clinical translation of novel molecular imaging tracers). Lectures covering fundamentals complemented with practical sessions that provide hands-on training with technologies and methods used in routine synthesis, synthesis optimization, analysis (and quality control testing), and in vitro and in vivo evaluation of PET probes. S/U or letter grading.

**269. Seminar: Medical Imaging (1)** Seminar, one hour. Continuous registration required of students in medical imaging specialty. Topics of current interest in medical imaging, with lecturers from department, other universities, and private industry. S/U or letter grading.

**285. Functional Neuroimaging: Techniques and Applications (3)** (Same as Bioengineering M284, Neuroscience M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

**286. Image Registration Techniques (4)** Lecture, four hours. Preparation: strong mathematical background. Examination of state-of-art image registration methods that exist today. Mathematical descriptions of each different class of registration methods and two-dimensional/three-dimensional/four-dimensional implementation details. Programming of registration methods in MATLAB/C/C++/CUDA/JAVA interfaces so students learn all registration methods currently investigated. Letter grading.

**424. Functional Magnetic Resonance Imaging Journal Club (2)** (Same as Psychiatry M424.) Discussion, 90 minutes. Limited to 10 students. Current topics in functional neuroimaging, with emphasis on novel applications, analysis, and acquisition methods. Presentation and critique of student papers. Overall emphasis on magnetic resonance imaging. Example areas include tractography through diffusion tensor imaging, jittered event-related experimental designs, parallel receiver MR imaging, integrated electrophysiological and image acquisition. S/U grading.

**495. Special Studies in Biomedical Physics (4)** Seminar, two hours; laboratory, four hours. Teaching assistance in graduate laboratory courses under supervision of faculty member. S/U grading.

**596. Research in Biomedical Physics (4 to 12)** Tutorial, to be arranged. Directed individual study or research. Only one 596 course may be applied toward MS degree requirements. May be repeated for credit. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations (4)** Tutorial, to be arranged. May not be applied toward MS degree requirements. May not be repeated. S/U grading.

**598. Research for and Preparation of MS Thesis. (4 to 12)** Tutorial, to be arranged. Two 598 courses (or 598 and 596 combined) may be applied toward MS degree requirements. May be repeated. S/U grading.

**599. Research for PhD Dissertation (4 to 12)** Tutorial, to be arranged. Preparation: successful completion of screening examinations. Research for and preparation of PhD dissertation. May be repeated. S/U grading.

# Physiology

## Physiology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Physiology (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

### Graduate

**M210. Molecular and Cellular Mechanisms of Neural Integration (5)** (Same as Neuroscience M230 and Physiological Science M210.) Lecture, four hours; discussion, one hour. Requisite: Neuroscience M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

**220. Methods in Cell Physiology (6)** Linear circuit analysis, including admittance, transfer admittance, transfer function, and filters using transform methods. Application of these concepts to electronic analog circuits in lectures and laboratory, with emphasis on operational amplifiers. Applications to electrophysiology include microelectrode amplifiers, voltage clamp and patch clamp techniques, with circuit analysis and noise considerations. Digital electronics cover logic gates, sequential circuits, and A/D and D/A conversion, with introduction to sampling theory.

**221. Cell Physiology: Excitability (6)** Prerequisite: course 220 or consent of instructor. In-depth coverage of general properties of excitable cells, linear cable properties, nonlinear conductance changes, and generation and propagation of the nerve impulse. Voltage gating and gating currents, as well as relationship between macroscopic conductance and single channel properties discussed in analytical detail using original publications.

**298. Current Topics in Physiology. (2 to 4)** Lecture, one hour; discussion, one hour. Designed for graduate students. Students read primary literature in a specified area and conduct or participate in discussions on these papers. May be repeated for credit. S/U or letter grading.

**596. Directed Individual Study or Research (2 to 12)** Tutorial, to be arranged. S/U grading.

**597. Preparation for MS Comprehensive Examination or PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. S/U grading.

**598. Thesis Research for MS Candidates (2 to 12)** Tutorial, to be arranged. S/U grading.

**599. Dissertation Research for PhD Candidates (2 to 12)** Tutorial, to be arranged. S/U grading.

# Political Science

## Political Science Courses

### Lower Division

**6. Introduction to Data Analysis (5)** Lecture, three or four hours; discussion, one hour (when scheduled). Not open for credit to students with credit for course 6R. Introduction to collection and analysis of political data, with emphasis on application of statistical reasoning to study of relationships among political variables. Use of computer as aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration. P/NP or letter grading.

**10. Introduction to Political Theory (5)** Lecture, three hours; discussion, one hour (when scheduled). Exposition and analysis of selected political theorists and concepts from Plato to the present. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. World Politics (5)** Lecture, three hours; discussion, one hour. Required of all students concentrating in Field II. Introduction to problems of world politics. P/NP or letter grading.

**30. Politics and Strategy (5)** Lecture, three or four hours; discussion, one hour (when scheduled). Introduction to study of strategic interaction in political applications. Use of game theory and other formal modeling strategies to understand politics. P/NP or letter grading.

**40. Introduction to American Politics (5)** Lecture, three hours; discussion, one hour. Basic institutions and processes of democratic politics. Treatment of themes such as constitutionalism, representation, participation, and leadership coupled with particular emphasis on the American case. P/NP or letter grading.

**50. Introduction to Comparative Politics (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50R. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries. P/NP or letter grading.

**60. Ethics and Governance (5)** Lecture, three or four hours; discussion, one hour (when scheduled). To study question of can't we all just get along, students play games of cooperation, coordination, collaboration, and competition and examine whether and how diversity, disagreement, and democracy influence game play, to understand under what conditions diversity feeds productively or counterproductively into group effort. Development of self- and other-awareness of emergent properties of disagreement to appreciate how different kinds of social organization promote or undercut social cognition and collective action. Such understanding needs to develop bottom-up through experiential and interactive learning, active and analytical learning, systems thinking, and real-world application. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M105. Economic Models of Public Choice (4)** (Same as Economics M135.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: any lower-division political science course. Enforced requisite: Economics 11. Designed for juniors/seniors. Analysis of methods and conse-

quences of arriving at collective decisions through political mechanisms. Topics include free-rider problem, voting and majority choice, demand revelation, and political bargaining. P/NP or letter grading.

**111A. Ancient and Medieval Political Theory (4)** (Same as Classics M121.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Plato, Aristotle, Thucydides, St. Augustine, Aquinas, Machiavelli, and More and questions such as forms of government, citizenship, justice, happiness, rhetoric, religion, emotion. P/NP or letter grading.

**111B. Early Modern Political Theory (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Machiavelli, More, Montaigne, Hobbes, Locke, Rousseau, Smith, Condorcet, and Kant and questions such as representation, property, autonomy, and political economy. P/NP or letter grading.

**111C. Late Modern Political Theory (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major thinkers such as Bentham, De Tocqueville, Hegel, Mill, Marx, Nietzsche, Arendt, and Foucault and questions such as alienation, power, participation, and difference. P/NP or letter grading.

**112A. Democratic Theory (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical analysis of selected major authors, issues, and arguments in contemporary democratic theory.

**112B. Invention of Democracy (5)** (Same as Classics M125.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Democracy was invented in ancient Greece as political form grounded on equality before law, citizenship, and freedom. It came into existence as struggle by demos, people, aware of its excellence and proud of its power, *kratos*. It became only regime capable of including all members of community while disregarding wealth, status, and diverging interests. Examination of history and theory of ancient democracy. P/NP or letter grading.

**113A. Problems in 20th-Century and Contemporary Political Theory (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study and interpretation of theorists who have focused their analyses on social and political problems of 20th century. P/NP or letter grading.

**113B. Politics, Theory, and Film (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 10. Designed for juniors/seniors. Intense and individualized examination of politically significant films with respect to central issues in political theory such as power and truth in light of relevant political theorists. P/NP or letter grading.

**114A. American Political Thought I, 1620 to 1865 (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of American political thinkers from Puritan period to Civil War. P/NP or letter grading.

**114B. American Political Thought II, 1865 to Present (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Course 114A is not requisite to 114B. Designed for juniors/seniors. Exposition and critical analysis of American political thinkers from Reconstruction to present. P/NP or letter grading.

**115C. Citizenship and Public Service (4)** (Same as Community Engagement and Social Change M115.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 10. Designed for juniors/seniors. Study of ways in which political thinkers have conceived of ideas of citizenship and public service, how these ideas have changed over time, and frameworks for thinking about citizenship in era of markets and globalization. P/NP or letter grading.

**115D. Diversity, Disagreement, and Democracy (5)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Can't we all just get along? Study of diversity, disagreement, and democracy. Diversity covers individual differences, cultural differences, and human universals; groupism, factionalism, and identity politics; multiculturalism and one-world ethics. Disagreement includes moral, ideological, and party-political disagreement; resolvable and irresolvable kinds of disagreement; groupthink and group polarization; herding and information cascades. Democracy stands for political mechanisms of information aggregation; political mechanisms to resolve differences, or to keep peace among people with irresolvable differences; emergence and spread of democracy, liberty, and rule of law. Letter grading.

**115E. Humanist Practice and Civic Culture (4)** Seminar, three hours. Enforced requisites: courses 10, M115C. Designed for juniors/seniors. Exploration of connection between humanist practices (philosophy, sociability, science, republican self-fashioning) and promotion of civic ethos—culture that would promote flourishing civil society. How has humanism informed our



Western understanding of republicanism and civic responsibility? What aspects of our humanist heritage maintain relevance for world that many describe as posthumanist? What form of civic culture is most appropriate for North American citizens in 21st century? P/NP or letter grading.

**116A. Marxism (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical analysis of origins, nature, and development of Marxist political theory. P/NP or letter grading.

**116B. Continental Political Thought (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of important text in continental political theory, including relationship between politics and reason, skepticism, and political freedom. P/NP or letter grading.

**118. Laws of War and Peace from Conquest of America to Declaration of Human Rights (1948) (4)** Lecture, three hours; discussion, one hour (when scheduled). Enforced prerequisite: course 10. Designed for juniors/seniors. Examination of theories of international relations and international law, with special emphasis on warfare, from conquest of America to end of World War II. P/NP or letter grading.

**119. Special Studies in Political Theory (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one course in Field I. Requisite: course 10. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to political theory. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**119A. Modern Reception of Ancient Political Thought (4)** (Same as Classics M124.) Lecture, three hours. Designed for juniors/seniors. Study of how Western culture has conceived and reinterpreted political thought of ancient Greeks and Romans. Topics include examination of influential case(s) of modern reception of classical antiquity. P/NP or letter grading.

**120A. Foreign Relations of U.S. (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of factors and forces entering into formation and implementation of American foreign policy, with special emphasis on contemporary problems. P/NP or letter grading.

**122B. Global Environment and World Politics (4)** (Same as Environment M161.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended prerequisite: course 20. Politics and policy of major global environmental issues such as climate change, integrating law, policy, and political science perspectives. P/NP or letter grading.

**122C. Global Catastrophic Risk: Clash of Science, Politics, and Ethics (5)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Global catastrophic risks pose challenge to modern civilization because of their superhuman extension in space, time, and knowledge realm. Their reach is global; their impact is long-term; and their comprehension is complex. Human interests and outlooks are local, regional, and national as well as egoistical, particularistic, and tribal. Overlapping generations spell intergenerational conflicts among living—young, middle-aged, and old—and between ancestors and descendants. Deeply and variably specialized experts struggle to communicate across scientific disciplines, across natural and human sciences, and across pure and applied sciences—only to hit brick wall in their communications with lay public, which is variously represented by elected politicians, appointed bureaucrats, organized interest groups, and fluid social movements. Study of ensuing clash of science. P/NP or letter grading.

**123A. International Law (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of nature and place of international law in conduct of international relations. P/NP or letter grading.

**123B. International Organizations (4)** Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Overview of both theory and functioning of international organizations in promoting international cooperation. Required readings include both statistical and formal models. P/NP or letter grading.

**124A. International Political Economy (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of political aspects of international economic issues. P/NP or letter grading.

**125A. Arms Control and International Security (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Arms control in context of international security in nuclear age. Nuclear arms race; relationship between deterrence doctrines and nuclear war; roles of technology and ideology; nuclear proliferation; outer space. P/NP or letter grading.

**126. Peace and War (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Theory and research on causes of war and conditions of peace.

**129. Diplomacy and War (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20 or 137A. Designed for juniors/seniors. Analysis of role of diplomacy in great power politics, history of diplomatic institutions, advantages of public and private diplomacy, bilateral and multilateral settings, and theory and practice of deterrence and coercion. Use of game theoretic reasoning and historical analysis. Prior exposure to both useful but not required. P/NP or letter grading.

**132A. International Relations of Middle East (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, Arab-Israeli problem, and Persian Gulf area.

**132B. International Relations of Middle East (4)** (Same as Honors Collegium M157.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Role of great powers in Middle East, with emphasis on American, Soviet, and West European policies since 1945. P/NP or letter grading.

**134. Foreign Policy Decision Making and Tools of Statecraft (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 120A. Designed for juniors/seniors. Contrasts purposive and process models of individual and group decision making. Impact of strategic interaction and situational factors on foreign policy decision making. Implications for policy choice of tools of statecraft (i.e., threats/promises, military/economic/diplomacy). P/NP or letter grading.

**137A. International Relations Theory (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of various theoretical approaches to international relations. P/NP or letter grading.

**139. Special Studies in International Relations (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: two courses in Field II, or course 20 and one course in Field II. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to international relations. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**140A. National Institutions: Congress (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Study of those factors which affect character of the legislative process and capacity of representative institutions to govern in contemporary society.

**140B. National Institutions: The Presidency (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Study of nature and problems of presidential leadership, emphasizing impact of the bureaucracy, congress, public opinion, interest groups, and party system on the presidency and national policy-making.

**140C. National Institutions: Supreme Court (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Introduction to American constitutional development and role of Supreme Court as interpreter of the U.S. Constitution. Reading of Supreme Court cases as well as various historical and current commentaries.

**141A. Electoral Politics: Political Psychology (4)** (Same as Psychology M138.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues. P/NP or letter grading.

**141B. Electoral Politics: Public Opinion and Voting Behavior (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Study of character and formation of political attitudes and public opinion. Role of public opinion in elections, relationship of political attitudes to vote decision, and influence of public opinion on public policy formulation. P/NP or letter grading.

**141E. Electoral Politics: Elections, Media, and Strategy (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Analysis of elections and media, including game-theoretic analysis, Downs spatial model of elections, valence characteristics in elections, campaign finance, endogeneity problems in social sciences, liberal bias in media, industrial organization of news industry, and effects of media on voter decisions. May be applied toward Field III or V. P/NP or letter grading.

**142A. Political Parties and Interest Groups: Political Parties (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Organization and activities of political parties in U.S. Attention to historical development of parties, nature of party change, campaign functions and electoral role of parties, membership problems and party activists, political finance, and policy formulation practices. P/NP or letter grading.

**142D. Understanding Public Issue Life Cycle (4)** (Same as Public Policy M127.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended preparation: courses 10, 40, and one course from Economics 1, 2, 5, 11, or 101. Examination of how public issue life cycle is shaped by (1) economic and political incentives of various actors—business, news media, mass public, organized interests, Congress, the president, regulatory agencies, and courts and (2) ideology, cognitive biases, and ethical reasoning. P/NP or letter grading.

**143A. Subnational Government: American State Government (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of governments of states of federal union as major sources of public policy in U.S., with government of California as principal topic. P/NP or letter grading.

**143B. Metropolitan Governance (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of how political, social, economic, and cultural factors influence metropolitan governance in both U.S. central cities and suburban areas. Study of some major issues in metropolitan governance through classic and contemporary readings on political power, political economy of cities, and racial/ economic segregation, as well as political incorporation and racial/ethnic coalitions. P/NP or letter grading.

**143C. Politics of American Suburbanization (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of political, social, and economic evolution of American suburbs, particularly in post-WWII era. Dominant themes focus primarily on historical patterns and implications of U.S. racial/ethnic inclusion and exclusion; class conflict and gender roles; classic and contemporary theories of metropolitan governance; and civic/political implications of American suburbanization. Select topics and case studies include housing, schools, and taxes; immigrant and ethnic minority suburbanization; suburban sprawl and uneven growth; suburban decline; and regionalism. P/NP or letter grading.

**145A. Public Law and Judicial Process: Anglo-American Legal System (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Evolution of English common law courts and their legal system, with emphasis on development of basic concepts of law which were received from that system in U.S. and remain relevant today. P/NP or letter grading.

**145B. Public Law and Judicial Process: Constitutional Law—Separation of Powers (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Constitutional questions concerning separation of powers, federalism, and relationship between government and property. P/NP or letter grading.

**145C. Public Law and Judicial Process: Constitutional Law—Civil Liberties (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Protection of civil and political rights and liberties under constitution. P/NP or letter grading.

**145E. Public Law and Judicial Process: Constitutional Law—Rights of Accused (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Constitutional rights of persons suspected, accused, and convicted of crimes, with attention to how protections have changed through history. P/NP or letter grading.

**146E. Organization Theory, Public Policy, and Administration: National Policy Development and Implementation (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Investigation of complex process of policy development and implementation in U.S., including roles of federal, state, and local agencies as well as private organizations. Subsections offered on particular policy areas, with topics announced in preceding term. P/NP or letter grading.

**147A. American Political Development: Overview (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Introduction to historical development of American politics and ideas and institutions that drive durable change over time. Examination of theories, concepts, and analytical tools at center of developmental inquiry. P/NP or letter grading.

**147B. American Political Development: Period Inquiry (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of one period in American political history. Critical features fostering stability and change. Discussion of contributions to structure and content of contemporary American politics. Possible periods, Founding, Reconstruction, Progressive Era, New Deal, and Cold War. Consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**147C. American Political Development: Institutional Development (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of one American political

institution and its development over time, or interaction of American politics and some aspect of culture and society. Assessment of broader political environment of politics, isolating points of contact, conflict, and pressure for change. Possible topics include party development, Constitution, business regulation, and politics and religion. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**149. Special Topics in American Government and Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: course 40, two courses in Field III. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to American politics. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**150. Political Violence (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of one or several different uses of violence in revolutionary process: demonstrations, mass uprisings, coup d'état, assassination, and terrorism. P/NP or letter grading.

**151A. African Politics: Government and Politics of Africa (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of government and politics in contemporary Africa, with special attention to state/society relations, interaction of politics and economic development, political institutions, and conflict and conflict resolution. Letter grading.

**151B. African Politics: Political Economy of Africa (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interactions of economic and political factors in African development, with special attention to political basis of inappropriate economic policy during early post-independence period and change toward a more appropriate economic strategy in recent times. Letter grading.

**151C. African Politics: Special Topics in African Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consult Schedule of Classes for topics to be offered in a specific term. Letter grading.

**152. Political Economy of Climate Change (4)** (Same as International Development Studies M150.) Lecture, three hours; discussion, one hour (when scheduled). Exploration of how governments at international, national, and regional levels are addressing—or not addressing—extraordinary challenge of climate change. Use of combination of readings, lectures, and discussions to better understand causes, consequences, and policies to address most important political problem of our time—not just in U.S., but in other major countries as well. Concentration on challenge of mitigating, rather than adapting to, climate change; and concentration on energy use, rather than agriculture, forestry, and land use. Letter grading.

**153A. Comparative Government and Politics of Western Europe: West European Government and Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Designed for juniors/seniors. Comparison of constitutional and political structure of West European states, with particular attention to contemporary problems. P/NP or letter grading.

**154A. Government and Politics in Latin America: States of Middle America (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Enforced requisite: course 50 or 50R. Designed for juniors/seniors. Comparative study of governmental and political development, organization, and practices. P/NP or letter grading.

**154B. Government and Politics in Latin America: States of South America (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of governmental and political development, organization, and practices. P/NP or letter grading.

**156A. Government and Politics of Post-Communist States: Russia (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Intensive study of institutions and political development in Russia, with special attention to legacy of Soviet Union. P/NP or letter grading.

**157. Government and Politics in the Middle East (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of government in the Arab States, Turkey, Israel, and Iran. P/NP or letter grading.

**158. Southeast Asian Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Designed for juniors/seniors. Survey of political environment in major Southeast Asian states. Use of comparative analysis to address major problems confronting region, including democratization, economic growth, drug trade, deforestation, and security threats. Letter grading.

**159A. Government and Politics of China: Chinese Revolution and Age of Mao Zedong (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of modern Chinese politics from decline of Manchu dynasty and rise of revolutionary nationalism to death of Mao Zedong, with emphasis on socioeconomic foundations and political dynamics of revolution in modern China.

**159B. Government and Politics of China: China in Age of Reform (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of China's political and ideological transformation in post-Mao era. Assessment of impact of changing socioeconomic conditions on revolutionary policies and programs of Chinese Communist Party. Exploration of etiology of 1989 Tiananmen crisis and consequences for China of collapse of Communism in East Europe and the Soviet Union.

**160. Government and Politics of Japan (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Designed for juniors/seniors. Structure and operation of contemporary Japanese political system, with special attention to domestic political forces and problems.

**163A. Discourse before Democracy (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Regularities in language used to talk or write about politics across states preceding emergence of universal adult franchises. Problems of collective action in oppression, contribution of shared identities to organizing collective action, role of discourse in cueing awareness of shared identity, evidence across time and space of association between discursive distancing and undemocratic rule (monarchy, exclusive republics, dictatorship). Letter grading.

**163B. Colonialism, Discourse, and Democracy (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Transformation of language used to talk or write about politics during era of European colonialism and resulting shifts in identity ensuing in political change. Theories of democracy, dynamics of colonial encounter between Europeans and peoples living outside Europe, problems of collective action in tyranny and democracy, consequences of sharing identity for collective action, transformation of discourse in response to colonialism and ensuing enfranchisement in Europe, North America, and Southwest Pacific, spread of enfranchisement following discursive transformations in Russia and in selected states emerging in formerly colonized territories. Letter grading.

**164A. Roots of Democracy (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of development of democracy around world from its beginnings in ancient Greece to present day. Techniques of comparative politics used to evaluate major arguments about why different countries become democratic at different times, and why some remain authoritarian. P/NP or letter grading.

**164B. Fascism and Right-Wing Extremism: Historical and Present Day (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical rise of Fascism in Germany, Italy, Japan, and Eastern Europe; its social support and ideology. Focus on Germany, including Nazi economic policy (Tooze, *Wages of Destruction*). Do today's xenophobic movements in Europe and U.S. resemble earlier Fascism in ideology and social base? P/NP or letter grading.

**165. Islam and Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Religious and spiritual foundations of Islamic legal and political institutions; legitimacy of historical and contemporary Islamic regimes, movements, and ideologies; political strategies of Islamic activism. P/NP or letter grading.

**166. Comparative Constitutional Design (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparison of major institutional structures such as presidentialism versus parliamentarism, unicameralism versus bicameralism, two-party versus multiparty systems, federal versus unitary systems, plurality versus proportional electoral systems, etc. Method of analysis is rational choice (political actors are assumed to optimize their results given institutional constraints and action of other actors). Result is that institutions affect political outcomes in systematic ways. P/NP or letter grading.

**167C. Political Economy of Development (4)** (Same as International Development Studies M120.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 50. Political economy approach to puzzle of why some countries are rich and others are poor and why, among latter, some have been able to achieve rapid rates of economic growth and others have not. Explanation and review of logic behind most important arguments that have been advanced to account for differences across countries in rates and levels of economic development. May be applied toward either Field IV or V. Letter grading.

**167D. Political Institutions and Economic Development (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one statistics course. Designed for juniors/seniors. Data analytic approach to question of

why some countries are rich and others are poor, with special attention to evidence about how governments and political institutions affect economic development. May be applied toward either Field IV or V. Letter grading.

**168. Comparative Political Analysis (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: two courses in Field IV, or course 50 and one course in Field IV. Designed for juniors/seniors. Major approaches to study of comparative politics. Concepts and methodology of comparative analysis. Letter grading.

**169. Special Studies in Comparative Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: two courses in Field IV. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to comparative politics. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**170A. Studies in Statistical Analysis of Political Data (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Enforced requisite: course 6 or 6R. Designed for juniors/seniors. Use of statistical methods to interpret data and test theories from various fields in political science and use of quantitative evidence in construction of convincing and truthful arguments related to world of politics. Consult Schedule of Classes for topics to be offered in specific term. P/NP or letter grading.

**171A. Applied Formal Models: Collective Action and Social Movements (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. How do social and political movements convince people to participate? Consideration of various theoretical perspectives, including game-theoretic, social network, structural, and identity approaches, illustrated by case studies. P/NP or letter grading.

**171B. Collective Choice and Majority Rule (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. How do different ways of counting and casting votes affect political decisions? When can voting rules be manipulated by leaders and voters? Examples from legislative, electoral, and judicial politics. P/NP or letter grading.

**171D. Negotiation (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Study of negotiation and bargaining in different contexts. Experiential exercises with emphasis on various aspects of negotiation, including coalition formation, honesty, and role of agents. P/NP or letter grading.

**172. Strategy and Conflict (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Enforced requisite: course 30. Designed for juniors/seniors. Intermediate topics in game theory applied to political problems, with special attention to strategic consequences of incomplete information and information asymmetries. P/NP or letter grading.

**179. Special Topics in Methods and Models (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Intensive examination of one or more special problems related to methods and models in political science. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**180A. African American Political Thought (4)** (Same as African American Studies M114C and Labor Studies M114C.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

**180B. Asian American Politics (4)** (Same as Asian American Studies M151.) Lecture, three hours. Introduction to Asian American politics through the study of the history of Asian Americans in the U.S., contemporary Asian American political participation, public opinion, elected officials, discrimination, civil liberties, and civil rights within the context of Asian Americans in the U.S. P/NP or letter grading.

**181A. Politics of Latino Communities (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper-division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Designed for juniors/seniors. Focus on understanding relationships of power and interaction between institutional contexts of Latino life, such as economy, state, and cultural system on one hand and structure of everyday life in Latino households, neighborhoods, and communities on other. P/NP or letter grading.

**181B. U.S. Latino Politics (5)** (Same as Chicana/o and Central American Studies M155B.) Lecture, four hours; discussion, one hour (when scheduled). Examination of history and contemporary role of Latinos in U.S. political

system. Topics include historical analysis of Latino immigration and migration; civil rights movement; increases in citizenship, registration, and voting in 1980s and 1990s; new wave of anti-immigrant attitudes; Development, Relief, and Education for Alien Minors (DREAM) Act and subsequent DREAMer movement; and response by Latinos today, with discussion of role of Latino vote in recent presidential elections. P/NP or letter grading.

**182. Ethnic Politics: African American Politics (4)** (Same as African American Studies M144.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper-division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Designed for juniors/seniors. Emphasis on dynamics of minority group politics in U.S., touching on conditions facing racial and ethnic groups, with black Americans being primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills. P/NP or letter grading.

**183. Experiments in Racial and Ethnic Politics (4)** (Same as Psychology M136C.) Lecture, three hours; laboratory, one hour. Research practicum consisting of designing, analyzing, and reporting effective research results. Topics include studying people's political attitudes, beliefs, and behaviors through carefully-designed experiments. P/NP or letter grading.

**184A. Black Experience in Latin America and Caribbean I (4)** (Same as African American Studies M154C.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Culture, history, politics, and identity of African Americans in Spanish and Lusophone Caribbean, South America, and Central America. Exploration of issues of identity in context of Afro/Latino migration to U.S. P/NP or letter grading.

**184B. Black Experience in Latin America and Caribbean II (4)** (Same as African American Studies M154D.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of issues regarding race and ethnicity in Latin America, with emphasis on comparisons to U.S. and within Latin America. Covers populations of African and indigenous origins, with emphasis on former. P/NP or letter grading.

**186. Special Studies in Race, Ethnicity, and Politics (4)** Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 40. Designed for juniors/seniors. Intensive examination of one or more special problems related to race, ethnicity, and politics in political science. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars for Majors: Political Theory (4)** Seminar, three hours. Preparation: two upper-division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper-division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading.

**191B. Variable Topics Research Seminars for Majors: International Relations (4)** Seminar, three hours. Preparation: two upper-division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper-division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading.

**191C. Variable Topics Research Seminars for Majors: Politics (4)** Seminar, three hours. Preparation: two upper-division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper-division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading.

**191D. Variable Topics Research Seminars for Majors: Comparative Government (4)** Seminar, three hours. Preparation: two upper-division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper-division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading.

**191DC. CAPP Washington, DC, Research Seminars (8)** (Same as Communication M191DC, History M191DC, Public Affairs M191DC, and Sociology M191DC.) Seminar, three hours. Limited to CAPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC—based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**191E. Variable Topics Research Seminars for Majors: Methods and Models (4)** Seminar, three hours. Preparation: two upper-division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper-division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading.

**191F. Variable Topics Research Seminars for Majors: Race, Ethnicity, and Politics (4)** Seminar, three hours. Preparation: two upper-division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper-division political science courses. Consult Schedule of Classes for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading.

**191H. Research Design Seminar for Honors Thesis (4)** Seminar, four hours. Preparation: one course in 191 series, 3.5 grade-point average in upper-division political science courses, eligibility for Letters and Science honors. Required of all students who wish to write honors thesis. Students define their research topic, select suitable research method, determine appropriate sources of information, prepare research proposal, find thesis director, begin their research, and submit progress reports or preliminary drafts. Class sessions emphasize critical and constructive discussions of students' topics, methods, and problems in research, as well as general consideration of political science research topics and methods of current or continuing interest. May be repeated for credit. Letter grading.

**194DC. Quarter in Washington, DC, Research Seminar (4)** (Same as History M194DC and Sociology M194DC.) Seminar, three hours. Limited to Quarter in Washington students and other students enrolled in UC Washington Center programs. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**195CE. Community and Corporate Internships in Political Science (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. Faculty mentor and graduate student instructor construct series of reading assignments that examine issues related to intern-

ship site. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

**195DC. Quarter in Washington, DC, Internships (4)** (Same as Community Engagement and Social Change M195DC, History M195DC, Public Affairs M195DC, and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior Quarter in Washington program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

**198. Honors Research in Political Science (1 to 4)** Tutorial, two hours. Requirement: course 191H. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Political Science (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Probability and Inference for Social Science (4)** Lecture, three hours; discussion, one hour; field work, eight hours. Basic topics in probability, the mathematical framework developed to help us think systematically and logically in face of uncertainty. Letter grading.

**200B. Regression Analysis for Social Science (4)** Lecture, three hours; discussion, one hour; field work, eight hours. Requirement: course 200A. Preparation: prior exposure to coding in R. Introduction to research design and regression analysis. Basic tools of statistical inference and application to practice of regression analysis. Emphasis on relationship of these statistical tools for drawing causal inferences; prediction and description also covered. Focus on principles of statistical inference, difference between design-based inference and model-based inference, identification versus estimation, building blocks of causal inference, characterization of regression model, diagnostics and extensions of regression model, threats to validity of our estimates. Students become comfortable coding in statistical programming language R. S/U or letter grading.

**200C. Causal Inference for Social Science (4)** Lecture, three hours; discussion, one hour; field work, eight hours. Requirements: courses 200A, 200B. Preparation: familiarity of basic probability theory and statistics, multivariate calculus, basic linear/matrix algebra. Clarification of conditions under which estimates made using non-experimental data can be given causal interpretation. Strategies for accessing and maximizing credibility of causal claims made from non-experimental evidence. Designs and methods, including experiments, matching, regression, panel methods, difference-in-differences, synthetic control methods, instrumental variable estimation, regression discontinuity designs, and sensitivity analyses. Reinforcement of some basic skills from probability and statistics. S/U or letter grading.

**200D. Maximum Likelihood for Social Science (4)** Seminar, three hours; field work, eight hours. Introduction to theory and practice of maximum likelihood analysis in political science, including discrete choice models, event count models, and duration models. Lectures combine traditional formal mathematical derivations of various estimators and their properties with Monte Carlo simulations and discussion of applications and practice. S/U or letter grading.

**200E. Experimental Design for Social Science (4)** Seminar, three hours; field work, eight hours. Preparation: familiarity with statistics of causal inference at level of course 200D. Covers design, analysis, and implementation of experimental research in social sciences. Emphasis on field experiments, though most issues that are covered are relevant for other modes including laboratory, laboratory-in-the-field, and survey experiments. S/U or letter grading.

**200F. Advanced Statistical Topics for Social Science (4)** Seminar, three hours; field work, eight hours. Preparation: courses 200A through 200E. Topics vary according to student interest. May be repeated for credit. S/U or letter grading.

**200X. Data Analysis Workshop (4)** Seminar, three hours. Enforced requirement: course 200C. Not open for credit to students with credit for course 200Y. Practice in applying statistical techniques to political science data. S/U or letter grading.

**200Y. Data Analysis Workshop I (2)** Seminar, two hours. Enforced requirement: course 200C. Course 200Y is enforced requirement to 200Z. Not open for credit to students with credit for course 200X. Practice in applying statistical techniques to political science data. S/U or letter grading.

**200Z. Data Analysis Workshop II (2)** Seminar, two hours. Enforced requirements: courses 200C, 200Y. Not open for credit to students with credit for course 200X. Practice in applying statistical techniques to political science data. S/U or letter grading.

**201A. Introduction to Formal Political Analysis (4)** Seminar, three hours. Survey of formal political theory to enhance literacy and provide analytical tools without presupposing mathematical background. Model building, collective goods, unanimity and the social contract, voting rules, paradoxes and impossibility theorems, stability, individual liberty and decentralization, strategic manipulation representation, vote trading.

**201B. Theory of Collective Choice (4)** Seminar, three hours. Recommended (but not prerequisite) for political science students: course 201A. Open to any student of politics, economics, philosophy, or mathematics with ability for deductive reasoning. Introduction to abstract, deductive study of voting systems and other collective-choice processes. Axiomatic method applied to politics and political economy, concept of rationality, and agenda control, choice-set or solution concepts.

**202. Mathematics for Political Science (4)** Lecture, three hours. Prerequisite: working knowledge of high school algebra. Survey of mathematical methods useful in political science. Topics include differential and integral calculus, differential equations, optimization, and linear algebra.

**203A. Economic Theory and Methods for Political Science I (4)** Discussion, three hours. Prerequisite: knowledge of elementary calculus. Introduction to techniques of economic analysis and survey of major topics in formal political economy. Investigation of models of regulation, trade protection, collective bargaining, and economic growth as time permits.

**203B. Economic Theory and Methods for Political Science II (4)** Discussion, three hours. Prerequisite: course 203A. Continuing survey of microeconomic techniques used in formal political science, with focus on market failures and on modeling individual choice in nonmarket situations. Specific topics include externalities, public goods and allocation mechanisms, collective action, spatial models, structure-induced equilibrium, and information asymmetries.

**204A. Game Theory in Politics I (4)** Seminar, three hours. Survey of game theory, with emphasis on utilizing mathematical models to understand political and economic phenomena. Applications concern political participation, public goods, legislatures, industrial regulation, bureaucracies, interest groups, and party competition. Designed to help students become informed consumers of game-theoretical literature in political science. S/U or letter grading.

**204B. Game Theory in Politics II (4)** Seminar, three hours; fieldwork, eight hours. Requirement: course 204A. Intermediate game theory course. Topics include games of incomplete information, cheap talk games, and bargaining theory. Applications concern political participation, public goods, legislatures, bureaucracies, conflict, and communication. Designed to help students use game theory in their research. S/U or letter grading.

**204C. Game Theory in Politics III (4)** Seminar, three hours; fieldwork, eight hours. Requirements: courses 204A, 204B. Advanced game theory course, with emphasis on new and/or advanced techniques. Topics include timing games, stochastic games, and mechanism design. Applications concern bureaucracies, conflict mediation, and political transitions. Designed to help students use advanced game theory in their research. S/U or letter grading.

**208B. Topics in Applied Game Theory (4)** (Same as Economics M215.) Lecture, three hours. Prerequisites: calculus or introductory probability, and graduate standing in economics or consent of instructor. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

**208D. Multivariate Analysis with Latent Variables (4)** (Same as Psychology M257 and Statistics M242.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factor analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

**208E. Bayesian Econometrics (4)** (Same as Economics M232A.) Lecture, three hours. Requirements: Economics 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. May be repeated for credit. S/U or letter grading.

**209. Special Topics in Formal Theory and Quantitative Methods (4)** Seminar, three hours. S/U or letter grading.

**210A. Political Theory Field Seminar 1 (4)** Lecture, three hours; field work, eight hours. Exploration of major texts and issues in political theory. S/U or letter grading.

**210B. Political Theory Field Seminar 2 (4)** Lecture, three hours; field work, eight hours. Further exploration of major texts and issues in political theory. S/U or letter grading.

**212. Seminar: Political Theory (4)** Seminar, three hours. S/U or letter grading.

**214. Political Theory in Transnational Context (4)** Seminar, three hours; discussion, one hour (when scheduled). Critical analysis of selected text from postcolonial, spatial, feminist, postmodern, and post-structuralist theories that assess impact of processes of globalization on such major concepts and problems of traditional social and political theory as sovereignty, citizenship, rights, community, representation, and democracy. S/U or letter grading.

**215. Liberalism and Its Critics (4)** Seminar, three hours; discussion, one hour (when scheduled). Examination of works of one or more major contemporary liberal theorists (Rawls, Dworkin, Habermas, Nussbaum, etc.) in light of alternatives which have been proposed to the liberal position (communitarianism, post-structuralism, group rights theories, etc.). S/U or letter grading.

**217. Selected Texts in Political Theory (4)** Seminar, three hours. Critical examination of major texts in political theory, with particular attention to their philosophic system, their relations to contemporary political and intellectual currents, and importance of system for present-day political analysis. S/U or letter grading.

**218. Selected Topics in Political Theory (4)** Seminar, three hours. Critical examination of major problem in political theory. S/U or letter grading.

**219. Workshop: Political Theory (4)** Discussion, three hours. S/U or letter grading.

**220A. International Relations Core Seminar I (4)** Seminar, three hours. Introduction to international relations theory: main schools of thought, methods of analysis, and research styles. Letter grading.

**220B. International Relations Core Seminar II (4)** Seminar, three hours. Further analysis of academic work in international relations and introduction to design of research project in this area. Letter grading.

**220C. International Relations Research Seminar (4)** Seminar, three hours; tutorial meetings, to be arranged. Design, implementation, and presentation of research project in international relations within combination of seminar and tutorial settings. Letter grading.

**222. Seminar: Strategic Interaction (4)** Seminar, three hours. A strategic move influences the other person's choice by affecting his expectations of how we will behave. Discussion of theories of deterrence, coercive diplomacy, crisis management, war termination, and negotiation. Use of various theoretical approaches to explaining strategic interaction, including psychology, bargaining theory, and game theory.

**223. Politics and Strategies of Modern War (4)** Seminar, three hours. Analysis of various national security problems in both their military/technical and political dimensions. Letter grading.

**225. American Foreign Policy (4)** Discussion, three hours. Discussion of approaches used to explain foreign policy-making at individual, small group, bureaucratic, and domestic politics levels. Application to selected cases in American foreign policy.

**226. Making of American Foreign Policy (4)** Seminar, three hours. Intensive analysis of policy formulation process and substance of selected contemporary problems in foreign policy. Political and institutional factors affecting foreign policies; analysis of policy options. S/U or letter grading.

**227. Foreign Policy Process (4)** Seminar, three hours. Requisites: courses 120A, 220A, 220B. Political science and policy science approaches to national foreign policy process, with primary focus on formulation and implementation of American foreign policy. S/U or letter grading.

**230. Contending Perspectives on International Political Economy (4)** Discussion, three hours. Survey of various theoretical approaches to international political economy.

**231. International Political Economy I (4)** Seminar, three hours. Interaction between international trade and investment and domestic political economics of both industrialized and industrializing societies.

**232. International Political Economy II (4)** Seminar, three hours. Designed to develop PhD students' skills in setting up and solving simple institutional design, political economy macro, signaling, and participation models, as well as two-level game models of domestic politics and international conflict and cooperation, with emphasis on applications in international political economy and comparative politics.

**233A. Political Economy Workshop (4)** Discussion, two hours. Preparation: successful completion of major field examinations. Workshops for students writing or preparing to write dissertations. Reading and discussion of re-

search in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Research paper of publishable length and quality required. S/U or letter grading.

**233B. Political Economy Workshop (4)** Discussion, two hours. Preparation: successful completion of major field examinations. Workshops for students writing or preparing to write dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Research paper of publishable length and quality required. S/U or letter grading.

**233C. Political Economy Workshop (4)** Discussion, two hours. Preparation: successful completion of major field examinations. Workshops for students writing or preparing to write dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Research paper of publishable length and quality required. S/U or letter grading.

**234A. Workshop: National Security, Foreign Policy, and International Relations (0)** Discussion, two hours. Course 234A is requisite to 234B, which is requisite to 234C. Courses must be taken in sequence. Open to graduate students who have successfully completed major examinations and intended for students preparing for or working on dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Major research paper required. In Progress grading (credit to be given only on completion of courses 234B and 234C).

**234B. Workshop: National Security, Foreign Policy, and International Relations (0)** Discussion, two hours. Requisite: course 234A. Courses must be taken in sequence. Open to graduate students who have successfully completed major examinations and intended for students preparing for or working on dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Major research paper required. In Progress grading (credit to be given only on completion of course 234C).

**234C. Workshop: National Security, Foreign Policy, and International Relations (12)** Discussion, two hours. Requisite: course 234B. Courses must be taken in sequence. Open to graduate students who have successfully completed major examinations and intended for students preparing for or working on dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Major research paper required. Letter grading.

**239. Selected Topics in International Relations (4)** Seminar, three hours. S/U or letter grading.

**240A. Seminar: Comparative Politics (4)** Seminar, three hours. Course 240A is not requisite to 240B. Survey of ideas and approaches that have been historically important in field of comparative politics, with selection of theories and methodologies that have comprised field over time. Letter grading.

**240B. Seminar: Comparative Politics (4)** Seminar, three hours. Course 240A is not requisite to 240B. Survey of contemporary research approaches and problems in field of comparative politics, with a range of theories and methodologies used by practitioners in the field. Letter grading.

**241. African Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in African politics. S/U or letter grading.

**242. Chinese and East Asian Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in Chinese and East Asian politics. S/U or letter grading.

**243. Japanese and Western Pacific Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in Japanese and Western Pacific politics. S/U or letter grading.

**244. Latin American Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in Latin American politics. S/U or letter grading.

**245. Middle Eastern Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in Middle Eastern politics. S/U or letter grading.

**246A. Western European Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in Western European politics. S/U or letter grading.

**246B. Political Development of Modern Europe (4)** Seminar, three hours; discussion, one hour (when scheduled). Principal phases of political development from high feudalism to the present, together with theories of causation.

**247. Politics of Soviet Union and Post-Soviet Region (4)** Seminar, three hours. Survey of contemporary research approaches and problems in Soviet Union and post-Soviet region politics. S/U or letter grading.

**247A. Evolution of Soviet and Russian Politics (4)** Seminar, three hours; discussion, one hour (when scheduled). Discussion seminar surveying political evolution of Soviet Union and its transformation.

**247B. Domestic Context of Russian Foreign Policy (4)** Seminar, three hours. Examination of domestic social, political, bureaucratic, and organizational sources of Russian foreign and strategic policy. S/U or letter grading.

**248. South Asian Politics (4)** Seminar, three hours. Survey of contemporary research approaches and problems in South Asian politics. S/U or letter grading.

**251. Political Economy of Economic Reform (4)** Discussion, three hours. Some familiarity with economics helpful. Principal political and economic arguments for economic reform and consideration of political issues that arise from this process. Letter grading.

**252. Parties and Party Systems (4)** Seminar, three hours; discussion, one hour (when scheduled). Theories and practices of political parties, party systems, and elections in comparative perspective.

**253. Political Change in Communist Systems (4)** Discussion, three hours. Examination of political context and consequences of structural reform in Communist systems; theories of post-Leninist political pluralization and convergence.

**254A. Institutions and Comparative Politics: Comparative Institutional Analysis (4)** Seminar, three hours; discussion, one hour (when scheduled). Use of advances of rational choice theory and new institutionalism to compare and analyze major institutional structures, including presidentialism vs. parliamentarism, unicameralism vs. bicameralism, two-party vs. multiparty systems, cadre vs. mass parties, and plurality vs. proportional electoral systems.

**254B. Institutions and Comparative Politics: Political Institutions, Delegation, and Policy-Making (4)** Seminar, three hours; discussion, one hour (when scheduled). Analysis of political foundations of policy-making. Characterization of democratic institutions as a series of delegations, from voters to elected officials, within parties and legislatures, and from elected politicians to unelected bureaucrats. Examination of implications of different institutional designs for how those delegations are made and controlled.

**255. Seminar: Political Economy of Developing Countries (4)** Seminar, three hours. Interdisciplinary seminar directed toward comparative analysis of political development and modernization. S/U or letter grading.

**256. External Sources of Domestic Politics (4)** Discussion, three hours. Theoretical and historical studies of impact of war and trade on domestic cleavages, policy, and institutions. S/U or letter grading.

**257. Labor and Working-Class Politics (4)** Discussion, three hours. Questions and topics on comparative labor and working-class politics. S/U or letter grading.

**258. Comparative Politics Proseminar (2)** Seminar, 90 minutes. Biweekly speaker series featuring presentation of unpublished research papers by comparative politics faculty members as well as external scholars. Required participation and written assignments. S/U grading.

**259. Selected Topics in Comparative Politics (4)** Discussion, three hours. Critical examination of major problems in comparative politics. S/U or letter grading.

**260A. Survey Course in American Politics: Political Parties and Electoral Process (4)** Discussion, three hours. S/U or letter grading.

**260B. Survey Course in American Politics: American Political Institutions (4)** Discussion, three hours. S/U or letter grading.

**261A. Proseminar: Political Psychology (4)** (Same as History M236A and Psychology M228A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

**261B. Mass Attitudes and Political Behavior (4)** Seminar, three hours. Requisite: course 141B or 260A. Analysis of development and change of political attitudes in mass publics and their relationship to voting, protest, and violence. S/U or letter grading.

**261C. Political Communication (4)** Discussion, three hours. Broad survey of research bearing on role of mass media in the American political process. Topics include theories of persuasion, evolution of media effects research, reporting and advertising as determinants of election outcomes, adversarial versus deferential journalism, and analyses of media bias.

**261D. Seminar: Political Psychology (4)** (Same as Psychology M228B.) Discussion, three hours. Requisite: course M261A or Psychology 220A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion. S/U or letter grading.

**261E. Critical Problems: Political Psychology (4)** (Same as Psychology M228C.) Discussion, three hours. S/U or letter grading.

**262. Political Parties (4)** Seminar, three hours. Critical examination of literature on party systems and organization. Special attention to political functions, electoral campaigns, and party cadres. S/U or letter grading.

**264. Politics and Society (4)** Seminar, three hours. Application of selected classical and contemporary sociological theories to politics. S/U or letter grading.

**265. Politics and Economy (4)** Discussion, three hours. Analysis of theoretical and practical relationships between economic organization and governmental institutions. Development and political implications of market system, banking and finance, corporate enterprise, and organized labor. S/U or letter grading.

**266. Group Theories of Politics (4)** Discussion, three hours. Critical appraisal of group theory approaches to study of political decision making, with special attention to empirical research problems and findings. S/U or letter grading.

**268. Seminar: Political and Electoral Problems (4)** Seminar, three hours. Preparation: two graduate courses in politics. S/U or letter grading.

**269. Seminar: Political Behavior (4)** Seminar, three hours. S/U or letter grading.

**270. Legislative Behavior (4)** Seminar, three hours. Analysis of major approaches to study of representative institutions, with special emphasis on assumptions, concepts, methods, and theoretical implications associated with each approach. S/U or letter grading.

**271. Executive Politics and Presidency (4)** Seminar, three hours. Analysis of executive organization and leadership, with emphasis on American Presidency. Special attention to theories of organization and personality and relationship between executive and other institutions and groups. S/U or letter grading.

**272. Political Environment of Federal Executive (4)** Discussion, three hours. Examination of political environment of federal executive in the U.S. Special attention to executive/legislative relations. S/U or letter grading.

**273. American Political Development (4)** Discussion, three hours. National political institutions in historical perspective, theories of state building, state societal relations, political culture. S/U or letter grading.

**275. Seminar: American Political Institutions (4)** Seminar, three hours. S/U or letter grading.

**280A. Race and Ethnic Politics Field Seminar 1 (4)** Seminar, three hours; field work, eight hours. Theories, methods, and development of paradigms in study of race and ethnic politics. S/U or letter grading.

**280B. Research Methods in Race-Ethnicity Politics (4)** Seminar, three hours; field work, eight hours. Second course in race-ethnicity politics field seminar sequence. Review, dissection, discussion, and debate of different research methods that are used in race-ethnicity politics scholarship and advantages and disadvantages of different approaches and methodologies. S/U or letter grading.

**289A. Approaches to Study of Race, Ethnicity, and Politics (4)** Seminar, three hours. Analysis of alternative theoretical, methodological, and empirical approaches to study of race, ethnicity, and politics. S/U or letter grading.

**289B. Current Research on Race, Ethnicity, and Politics (4)** Seminar, three hours. Exploration of current research on race, ethnicity, and politics. S/U or letter grading.

**290. Modern Political Economy (4)** Discussion, three hours. Discussion of implications for understanding politics of thinking of politicians, bureaucrats, producers, consumers, and nations as utility maximizers. Topics include microfoundations for macromodels, forms of political participation, state, government regulation, growth of government, bureaucracy elections, public policy, inflation. S/U or letter grading.

**292A. Introduction to Political Inquiry: Problems of Scientific Inquiry and Normative Discourse (2)** Seminar, two hours; discussion, one hour (when scheduled). S/U grading.

**292B. Introduction to Political Inquiry: Research Design (4)** Seminar, three hours; discussion, one hour (when scheduled). Design of qualitative and quantitative empirical research projects. S/U or letter grading.

**293. Great Ideas in Social Sciences (2)** Seminar, two hours. Vehicle for faculty and visitors to teach research seminars of variable length. Special training opportunities on advanced quantitative methods, including complexity theory, agent-based modeling, experimental economics, social cognitive neuroscience, and evolutionary psychology, to be offered at irregular intervals. May be repeated for credit. S/U grading.

**495. Teaching Political Science (4)** Seminar, to be arranged. Workshop in teaching techniques, including evaluation of each student's own performance as a teaching assistant. Normally to be taken by all new teaching assistants in



first term of their assistantships. May be taken only in term in which students are teaching assistants. May not be applied toward MA or PhD course requirements. S/U grading.

**495A. Teaching in Political Science 1 (4)** Seminar, three hours. Intensive training during Spring Quarter. Required of all new PhD students and potential departmental teaching assistants. Practical and theoretical issues in teaching of political science. S/U grading.

**495B. Teaching in Political Science 2 (4)** Seminar, two hours. Requisite: course 495A. Workshop in teaching techniques, including evaluation of each student's own performance as teaching assistant. Normally to be taken by all new teaching assistants in first term of their assistantships. May be taken only in term in which students are teaching assistants. May not be applied toward MA or PhD course requirements. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Individual Study or Research (2 to 4)** Tutorial, to be arranged. May be applied only three times toward minimum course requirement in first two years. May be repeated. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. May be repeated. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 12)** Tutorial, to be arranged. May be repeated. S/U grading.

# Psychiatry and Biobehavioral Sciences

## Psychiatry and Biobehavioral Sciences Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**79. Applied Positive Neuroscience: Skills for Improving Productivity and Well-Being (5)** Lecture, three hours; discussion, one hour. Not open to students with credit for Community Health Sciences 179. Intrapersonal, interpersonal, and extrapersonal contributions to well-being, and how activity and chemistry of key brain regions contribute to each, e.g. influences of mindfulness on prefrontal cortex activity, or how oxytocin system is altered by social interaction. Students learn to recognize relationship between cognitive, social, and emotional competence for healthy development, and how to apply it to their own lives. Through neuroscientific context, introduction to multidisciplinary perspectives on variety of topics that are widely considered significant maturational tasks for young adults, including emotion regulation, managing social relationships, enhancing productivity, and identity development. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**173. Mental Health: Bias, Inequities, and Racism (4)** (Formerly numbered 188.) Lecture, three hours. Our brains bias our behaviors to optimize functioning in our environment but often based on premises that are contrary to society goals of equality. Biases, both implicit and explicit are prevalent, and their existence leads to both overt and covert decision-making based on race, financial status, gender, and disabilities. Focus on biases, inequities, and disparities that surround mental health. Exploration of relevant biases in society and how they may arise. Students learn about implicit and explicit bias, and discuss instruments attempting to measure biases including implicit-association test. Exploration of multiple areas related to structural racism and how it contributes to mental health inequities. Review of biases against those with mental health disorders, exacerbation of mental health disorders, health inequities because of racism and discrimination, and treatment biases for mental health disorders. Consideration of current and historical research and relevance of public policies and criminal justice system in creating and perpetuating health inequities. P/NP or letter grading.

**174. Brain and Behavioral Health: Childhood and Adolescence (5)** Seminar, three hours. Limited to junior/senior Neuroscience or Psychology majors. Integration of problem-based learning approach to teach foundational information about application of brain and behavioral science to understanding and promotion of child and adolescent mental health. Exploration of integration of developmental psychopathology, applied treatment research, and public policy to identify and dismantle barriers to problems. Focus on set of key topics (e.g., autism, mood disorders, anxiety disorders, and substance use disorders) during childhood and adolescence. Research of childhood and ad-

olescent mental health and public policy literature. Guest facilitators with expertise complement study of emerging treatment advances, applications, and barriers. Letter grading.

**175. Mindfulness Practice and Theory (4)** Seminar, five hours. Designed for beginners; prior experience with meditation not required. Introduction to mindfulness, including basic mindfulness meditation practices, both sitting and moving, ways to deepen positive emotions like gratitude, kindness, and joy, and methods for integrating more awareness and creativity into ordinary activities. Examination of varying meditative traditions as well as emerging science on beneficial effects of mindfulness practice for mental and physical health. Beneficial effects include reduced stress, improved attention, reduced emotional reactivity, and greater mind-body awareness. Learning and development of practical skills of relational mindfulness in interactions with others. Offered in summer only. P/NP or letter grading.

**176. Brain and Behavioral Health: Adulthood and Aging (5)** Seminar, five hours. Limited to junior/senior Neuroscience or Psychology majors. Integration of problem-based learning approach to teach foundational information about application of brain and behavioral science to understanding and promotion of mental health during adulthood and aging. Exploration of integration of developmental psychopathology, applied treatment research, and public policy to identify and dismantle barriers to problems. Focus on set of key topics (e.g., depression, dementia, post-traumatic stress disorder) during adulthood and aging. Research of mental health and public policy literature. Guest facilitators with expertise complement study of emerging treatment advances, applications, and barriers. Letter grading.

**177A. Brain and Behavioral Health Clinical Practicum (4)** Fieldwork, six hours; discussion, one hour. Designed to provide students with integrated set of learning experiences related to mental health and wellness across lifespan. Through applied approach to brain and behavioral science, exploration of integration of developmental psychopathology, assessment and treatment research, and public policy to address issues related to psychological health and wellness. Focus on key topics (e.g., different classes of psychiatric illness) during childhood, adolescence, and adulthood offering direct exposure to health-care settings, clinical populations, and interdisciplinary teams that treat them. Students participate in assigned health setting under supervision of faculty mentor. Through observation of activities in clinical health setting, students see firsthand how brain and behavior science translates into real-world care. In Progress grading (credit to be given only on completion of course 177B.)

**177B. Brain and Behavioral Health Clinical Practicum (4)** Fieldwork, six hours; discussion, one hour. Designed to provide students with integrated set of learning experiences related to mental health and wellness across lifespan. Through applied approach to brain and behavioral science, exploration of integration of developmental psychopathology, assessment and treatment research, and public policy to address issues related to psychological health and wellness. Focus on key topics (e.g., different classes of psychiatric illness) during childhood, adolescence, and adulthood offering direct exposure to health-care settings, clinical populations, and interdisciplinary teams that treat them. Students participate in assigned health setting under supervision of faculty mentor. Through observation of activities in clinical health setting, students see firsthand how brain and behavior science translates into real-world care. Letter grading.

**178. Cannabis and Cannabinoids: From Pharmacology to Public Policy (4)** Lecture, three hours. Designed for undergraduate students with biology, human biology and society, neuroscience, physiology, or psychology background and graduate students in neuroscience-related programs. Relevant for those considering career in medical, social science, or policy fields. Offers comprehensive didactic information concerning Cannabis plant and relates basic information with clinical and societal use of plant and its extracts. Analysis of pharmacology of exogenous and endogenous cannabinoids at the molecular, cellular, and behavioral levels. Study of physiological and psychological actions of phytocannabinoids (focusing on THC and CBD) and synthetic cannabinoids and evidence-based research of potential benefits and harms of different cannabinoids. Review of issues related to cannabinoid policy including legislation, FDA regulation, and health care services. P/NP or letter grading.

**182. Personal Brain Management (4)** (Same as Neuroscience M161.) Seminar, four hours. Basic overview of brain function and consideration of some management methods that exist already, and what future may hold. New methods for predicting our own futures and modeling what if scenarios that might alter risks and benefits of different courses of action, based on individual genetic background and other elements of personal history and environmental exposures. Introduction to key principles from science of behavior change, illustrating how important health-related behavioral habits are and how difficult these can be to change and why. Coverage of series of topics that center on personal enhancement of well-being through consideration of stress manage-

ment, long-term goal and value identification, mapping of long-term goals onto immediate actions, reinforcement learning, meditation, neurofeedback, and time management. Critical appraisal of tools to help students distinguish scientifically validated procedures. Offered in summer only. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Psychiatry. (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be taken for letter grade once only. May be repeated for credit. Individual contract required. Additional information and contract forms are available in Office of Education, 38-216 Semel Institute. P/NP or letter grading.

**199. Directed Research in Psychiatry and Biobehavioral Sciences (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M210. Editorial Board Apprenticeship (2)** (Same as Health Services M249Q.) Seminar, two hours. Designed for postdoctoral fellows and advanced PhD students. Participation in peer review process for academic journal, Health Psychology, with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U or letter grading.

**226A. Childhood Psychopathology Research Seminar (2)** Seminar, 90 minutes. Current research in causes and behavioral manifestations of childhood psychopathology. Discussion on diagnosis and etiology of childhood disturbances.

**226B. Childhood Psychopathology Research Seminar (2)** Seminar, 90 minutes. Current research in causes and behavioral manifestations of childhood psychopathology. Discussion on diagnosis and etiology of childhood disturbances.

**230. Communication of Science (2)** (Same as Biomathematics M262.) Lecture, two hours; discussion, one hour. Presentation of various types of scientific writings and their good practice. Details of writing specific articles: methods, results, discussion. Writing of review article. Grant submissions: aims, background, results, design. Role of appendices. Communication with lay public. S/U or letter grading.

**232. Causal Inference (4)** (Same as Biostatistics M235.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 200C, 202B, or equivalent. Philosophical foundations, logical paradoxes, decision analysis, selection bias, confounding, ecological paradox, historical development, potential outcomes, Rubin causal model, propensity scores, competing perspectives on

path analysis and graphical/structural-equation models, experiments with noncompliance, principal stratification, decision making when causality is disputed, role of ethics in decision making. S/U or letter grading.

**234. Affective Disorders. (2, 4)** (Same as Psychology M280.) Seminar, two hours. General topics related to primary affective disorders (depression, manic depressive illness), including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment. Students enrolled for 4 units are assigned a more intensive reading list and required to make a presentation or prepare a research paper.

**236A. Psychology Interns Seminar (1)** Seminar, 90 minutes. Current topics in clinical psychology. Group-selected topics for discussion pertaining to psychopathology, diagnostic evaluation, and modalities of treatment. S/U grading.

**236B. Psychology Interns Seminar (1)** Seminar, 90 minutes. Current topics in clinical psychology. Group-selected topics for discussion pertaining to psychopathology, diagnostic evaluation, and modalities of treatment. S/U grading.

**236C. Psychology Interns Seminar (1)** Seminar, 90 minutes. Current topics in clinical psychology. Group-selected topics for discussion pertaining to psychopathology, diagnostic evaluation, and modalities of treatment. S/U grading.

**237. Seminar: Behavioral Neuroimmunology (1)** Lecture, one hour per month; discussion, 30 minutes per month. Series of lectures presented the second Wednesday of each month throughout academic year by invited speakers. S/U grading.

**238. Survey Research Techniques in Psychocultural Studies (4)** (Same as Psychology M238.) Seminar, three hours. Designed for graduate students. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

**240. Assessment and Treatment of African American Families (3)** (Same as African American Studies M240.) Seminar, two hours. Designed for graduate students. Course aids mental health professionals and trainees in evaluation and treatment of African American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form basis for supervised evaluation and case management with African American children and families. Letter grading.

**243A. Mental Retardation and Chronic Medical Illness Interdisciplinary Core Curriculum (1)** Lecture, 90 minutes. Survey series on major topic areas of mental retardation and chronic medical illness, covering epidemiology, nosology, assessment, healthcare delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in interdisciplinary framework as generic information independent of discipline. S/U grading.

**243B. Mental Retardation and Chronic Medical Illness Interdisciplinary Core Curriculum (1)** Lecture, 90 minutes. Survey series on major topic areas of mental retardation and chronic medical illness, covering epidemiology, nosology, assessment, healthcare delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in interdisciplinary framework as generic information independent of discipline. S/U grading.

**243C. Mental Retardation and Chronic Medical Illness Interdisciplinary Core Curriculum (1)** Lecture, 90 minutes. Survey series on major topic areas of mental retardation and chronic medical illness, covering epidemiology, nosology, assessment, healthcare delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in interdisciplinary framework as generic information independent of discipline. S/U grading.

**253. Seminar: Child Development (1)** Theories of development, systems of child development, and chronological aspects of child development. Presentation of assigned readings by students plays major role in each session.

**256. Basic Clinical Child Psychopathology (1)** Weekly seminar covering basic clinical aspects of child psychopathology. Readings provided for basis of discussion on topics including interviewing of parents and children, diagnosis, and related syndromes. S/U grading.

**259. Legal and Ethical Issues with Vulnerable Populations (3)** Lecture, 90 minutes; laboratory, three and one half hours. Discussion of current laws dealing with vulnerable populations (e.g., children, developmentally disabled people, elderly people); philosophies, ethics, ethical codes, issues, and how to resolve them. Use of videotapes and discussion of cases.

**261. Advanced Seminar: Child and Adolescent Psychopharmacology (1)** Use of problem-based teaching methods and critical reviews of medical literature as basis for rational pharmacotherapy in children and adolescents. Major focus on development of a clinical decision-making process, given the limited scientific evidence supporting pharmacological practice in the field. S/U grading.

**263. Clinical Pharmacology (2)** (Same as Biomathematics M263 and Medicine M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (MD, DDS, DNSc, or PhD). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

**264. Health and Mental Health Disparities from Psychosocial and Cultural Perspectives (4)** Seminar, three hours. Designed for graduate and medical students, resident physicians, and juniors/seniors (with consent of instructor) interested in learning about general, sexual, and mental health disparities. Survey course to introduce students to health disparities that exist for ethnic minorities and factors that may contribute to disproportionate prevalence rates. Review and discussion of research literature, with focus on specific diseases such as HIV/AIDS, substance abuse, depression, and breast and prostate cancer. Discussion of stereotypes and myths about healthcare of ethnic populations. Examination of psychosocial and cultural contexts as potential or contributing factors. S/U or letter grading.

**270. Neural Basis of Memory (4)** (Same as Neuroscience M273.) Lecture, two hours; discussion, one hour. Anatomical, physiological, and neurological data integrated into models for how behavioral phenomena of memory arise. Discussion of invertebrate memory, cortical conditioning, hippocampus and declarative memory, and frontal lobes and primary memory.

**272. Psychological Anthropology (4)** (Same as Anthropology M237.) Seminar, three hours. Various psychological issues in anthropology, both theoretical and methodological. Areas of interest include such things as culture and theory, culture and personality, and culture psychiatry. Discussion of questions relating to symbolic and unconsciousness process as they relate to culture. Topics vary from term to term. May be repeated for credit with topic change. S/U or letter grading.

**274A. Research Seminar: Psychoneuroimmunology (2)** Seminar, two hours. Research foundations for basic and clinical psychoneuroimmunology and clinical implications of relationship between brain, behavior, and immunity. S/U grading.

**274B. Research Seminar: Psychoneuroimmunology (2)** Seminar, two hours. Research foundations for basic and clinical psychoneuroimmunology and clinical implications of relationship between brain, behavior, and immunity. S/U grading.

**274C. Research Seminar: Psychoneuroimmunology (2)** Seminar, two hours. Research foundations for basic and clinical psychoneuroimmunology and clinical implications of relationship between brain, behavior, and immunity. S/U grading.

**275. Psychoneuroimmunology Research Seminar (1)** Seminar, one hour. Topics to be centered around current directions in psychoneuroimmunology (PNI), including social genomics, inflammation, and biological aging. Common molecular and immunological protocols used in PNI and current directions in PNI research, with emphasis on basic immunology and immunological/molecular biology and role of behavioral and psychological factors on immune and cell-aging processes. S/U grading.

**277. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2, 4)** (Same as Psychology M285.) Seminar, 90 minutes. Designed for graduate students. Cognitive/behavioral approaches to prevention and treatment of mental health problems in children. Examination of service delivery systems for treating troubled youth and discussion of issues with respect to current systems of care. Major problems include conduct disorders, attention deficit disorder, depression, anxiety, and learning disabilities. Letter grading.

**281A. Behavioral Therapy in Educational Settings (4)** Lecture, one hour; laboratory, seven hours. Supervised experience in classroom working with exceptional children in conducting systematic observations, administering formal assessments, and developing and carrying out individualized educational and behavioral programs. Theoretical background furnished through one-hour weekly lecture. S/U or letter grading.

**281B. Behavioral Therapy in Educational Settings (4)** Lecture, one hour; laboratory, seven hours. Supervised experience in classroom working with exceptional children in conducting systematic observations, administering formal assessments, and developing and carrying out individualized educational and behavioral programs. Theoretical background furnished through one-hour weekly lecture. S/U or letter grading.

**281C. Behavioral Therapy in Educational Settings (4)** Lecture, one hour; laboratory, seven hours. Supervised experience in classroom working with exceptional children in conducting systematic observations, administering formal assessments, and developing and carrying out individualized educational and behavioral programs. Theoretical background furnished through one-hour weekly lecture. S/U or letter grading.

**284A. Principles of Neuroimaging I (4)** (Same as Neuroscience M284A and Psychology M288A.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: course 292. Course M284A is requisite to M284B. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

**284B. Principles of Neuroimaging II (4)** (Same as Neuroscience M284B and Psychology M288B.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: course M284A. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

**285. Functional Neuroimaging: Techniques and Applications (3)** (Same as Bioengineering M284, Neuroscience M285, Physics and Biology in Medicine M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

**287. Small Group Cognitive-Behavioral Interventions (4)** Lecture, three hours. Presentation of brief therapeutic interventions for adults and children at risk for suicide, depression, conduct problems, and HIV, with didactic and experiential techniques.

**288. Social and Behavioral Factors of HIV/AIDS: Global Perspective (4)** (Same as Community Health Sciences M294.) Lecture, four hours. Requisites: Community Health Sciences 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors which influence both transmission and prevention of HIV/AIDS throughout the world. Letter grading.

**289. Intervention to Reduce HIV and Its Consequences (4)** Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for variety of high-risk populations. Letter grading.

**290. Los Angeles HIV-Community Colloquia (1)** Lecture, two hours. Examination of emerging scientific HIV-related research. Discussion of policy issues, theories, and designs of HIV-related services and programs and shifting epidemiology of the virus and disease. S/U grading.

**292. Functional Neuroanatomy for Neuropsychologists (2)** Lecture, two hours. Preparation: graduate-level neuroanatomy course. Designed for neuropsychology and radiology postdoctoral fellows and neuroscience graduate students. Human functional anatomy from systems perspective, integrating results from lesion research and functional neuroimaging. Students learn to identify gyri and major sulci on MR images and memorize associated Brodmann's region. Letter grading.

**293. Professional Development: Presentations and Preparation for Academic Interviews (2)** Seminar, two hours. Exposure to range of professional development skills essential to academic career development. Hands-on skills and practice in preparing and delivering presentations for various audiences, and preparing research and/or teaching statements for job applications. S/U grading.

**294. Essentials of Clinical Investigation (2)** Lecture, two hours; discussion, two hours. Designed for graduate students. Introduction to initial steps in clinical research through preparation of research proposal. Small working groups develop grant proposal on specific topic. S/U grading.

**295A. Substantive Issues in Substance Abuse I (2)** Seminar, two hours; discussion, one hour. Neurobiology and psychopharmacology of drug abuse, as well as epidemiology and prevention. Discussion of pros and cons of various treatment modalities for drug dependence. S/U grading.

**295B. Substantive Issues in Substance Abuse II (2)** Seminar, two hours; discussion, one hour. Drug use patterns and treatment issues in specific populations such as women, adolescents, homeless, multiply diagnosed, as well as different ethnic populations. Exploration of relationship between drug abuse, sexuality, and HIV/AIDS. S/U grading.

**295C. Substantive Issues in Substance Abuse III (2)** Seminar, two hours; discussion, one hour. Theoretical perspectives on drug use and abuse as well as policy and ethical aspects of drug abuse research. Research design and analysis issues pertinent to drug abuse research. S/U grading.

**296. Research Group Seminar: Practicum (2)** Research group meeting, three hours. Designed for graduate students who plan to conduct research studies. Coverage of (1) publishing process—submitting manuscripts to journals, selecting appropriate journals, frequent reasons for journal rejection of manuscripts, and key points in writing articles for publication, (2) overview of National Institutes of Health (NIH), including organization structure and mission, grant application process, funding mechanisms, and review process, (3) preparing/writing grants for submission to NIH, including review of components of successful applications, criteria by which applications are judged, and what to emphasize in each section, (4) grant mechanisms specifically designed for new investigators, (5) human subjects section for grant applications and IRB issues, and (6) preparation of budgets (modular and detailed) and budget justification for NIH submissions. S/U or letter grading.

**402. Journal Club (1)** Seminar, two hours; outside study, two hours. Presentation of participants' current research. Critical review of recent articles on drug abuse. Training sessions included in areas in which fellows believe they have a recognized need. S/U grading.

**403. Individual Case Supervision. (1 to 4)** Preparation: submission of written proposal to be structured by instructor and student prior to enrollment; additional information and proposal forms available in Office of Education, 38-216 Semel Institute. One-to-one supervision of individual therapy cases, including analyses of patient data, supervision of ongoing treatment, informal didactic sessions on personality theory, and applications to patient management. S/U or letter grading.

**405. Trauma and Sexual Abuse Research Seminar (4)** Seminar, three hours; discussion, one hour. Designed for graduate and medical students and resident physicians interested in learning about biobehavioral trauma research. Introduction to DSM-IV TR diagnostic criteria for posttraumatic stress disorder (PTSD), as well as biopsychosocial sequelae. Examination and discussion of child and adult sexual abuse in context of being causative precursors of acute and chronic causes of PTSD. Evaluation of allostatic load, among other biologic variables, within context of physiological markers for PTSD. Review of current modes of treatment, including therapeutic and pharmacological interventions. Discussion of research methods particularly important for trauma research. S/U or letter grading.

**407A. Clinical Hypnosis Seminar (2)** Seminar, two hours. Integrated, experientially oriented sequence with lecture, discussion, demonstration, practice, and assigned readings. Guest speakers with expertise in specific hypnotic applications and populations, and video programs included. Trainees and faculty members in healthcare professions as well as licensed healthcare providers from community (MCEP credit available) encouraged to enroll. For trainees in social work, psychology, and psychiatry, completion of minimum of one year of supervised training in psychotherapy or behavior therapy required. Cultural and historical context for hypnosis; development of technical competence in trance induction, deepening, management, and re-alerting; and gaining familiarity with trance experiences. S/U grading.

**407B. Clinical Hypnosis Seminar (2)** Seminar, two hours. Integrated, experientially oriented sequence with lecture, discussion, demonstration, practice, and assigned readings. Guest speakers with expertise in specific hypnotic applications and populations, and video programs included. Trainees and faculty members in healthcare professions as well as licensed healthcare providers from community (MCEP credit available) encouraged to enroll. For trainees in social work, psychology, and psychiatry, completion of minimum of one year of supervised training in psychotherapy or behavior therapy required. Fundamentals of trance utilization, including diagnosis, creating safety, and facilitating exploratory trance experiences. S/U grading.

**407C. Clinical Hypnosis Seminar (2)** Seminar, two hours. Integrated, experientially oriented sequence with lecture, discussion, demonstration, practice, and assigned readings. Guest speakers with expertise in specific hypnotic applications and populations, and video programs included. Trainees and faculty members in healthcare professions as well as licensed healthcare providers from community (MCEP credit available) encouraged to enroll. For trainees in social work, psychology, and psychiatry, completion of minimum of one year of supervised training in psychotherapy or behavior therapy required. Application of hypnotic interventions in specific clinical situations and with specific populations. S/U grading.

**424. Functional Magnetic Resonance Imaging Journal Club (2)** (Same as Physics and Biology in Medicine M424.) Discussion, 90 minutes. Limited to 10 students. Current topics in functional neuroimaging, with emphasis on novel applications, analysis, and acquisition methods. Presentation and critique of student papers. Overall emphasis on magnetic resonance imaging.

Example areas include tractography through diffusion tensor imaging, jittered event-related experimental designs, parallel receiver MR imaging, integrated electrophysiological and image acquisition. S/U grading.

**425. Teaching Case Conference (1)** Review of diagnosis and treatment of full spectrum of disorders, with expert off-unit consultants. S/U or letter grading.

**429. Child Outpatient Team (1)** Weekly team meetings to coordinate clinical activities of trainees in Child Outpatient Department. Discussion of literature and theories related to selected cases. S/U grading.

**431A. Pediatric Neuropsychology: Assessment, Diagnosis, and Treatment Planning (1)** Seminar, one hour. Presentation of didactics on developmental disorders, pediatric syndromes, and acquired brain injury in children. Coverage of methods of assessment in children, with focus on neuropsychological testing. Presentation of differential diagnosis and treatment planning. Developmental disorders, including autism, Asperger's, mental retardation, specific learning disabilities, and Attention Deficit/Hyperactivity Disorder. Current conceptualizations of these disorders used to form assessment techniques, including choice of instruments and interpretation of results. Practical issues in pediatric neuropsychology, including ethics, educational law, and interdisciplinary interventions. S/U grading.

**431B. Pediatric Neuropsychology: Assessment, Diagnosis, and Treatment Planning (1)** Seminar, one hour. Presentation of didactics on developmental disorders, pediatric syndromes, and acquired brain injury in children. Coverage of methods of assessment in children, with focus on neuropsychological testing. Presentation of differential diagnosis and treatment planning. Neurodevelopmental disorders, head injury, low birth weight, tumors, and epilepsy. S/U grading.

**431C. Pediatric Neuropsychology: Assessment, Diagnosis, and Treatment Planning (1)** Seminar, one hour. Presentation of didactics on developmental disorders, pediatric syndromes, and acquired brain injury in children. Coverage of methods of assessment in children, with focus on neuropsychological testing. Presentation of differential diagnosis and treatment planning. Implementation of research from previous two terms in case presentation format, supplemented with various guest speakers. S/U grading.

**434. Seminar: Addiction Psychiatry (1)** Seminar, one hour. Cutting-edge research in neuroscience of addictive behavior, using both animal models and human participants. Neuroscience findings regarding multiple addictive substances (e.g., stimulants, alcohol, nicotine) and related behavioral traits (e.g., impulsivity, risky decision making). Some lectures provided by nationally recognized invited guest speakers. S/U grading.

**449. Parent Training Intervention Workshop (2)** Lecture, 90 minutes; discussion, one hour. Advanced clinical trainees learn behavioral techniques of assessment and treatment of parent/child problems. Lectures, case presentations, and workshops on various skills necessary.

**454. Advanced Topics in Neuropsychology (1)** Seminar, one hour. Coverage of topics in even years that involve interface of neuropsychology with other disciplines, such as cognition and psychopharmacology, cognitive remediation, ecological validity of neuropsychological assessment, cognition and genomics, and psychometrics/test development. Focus in odd years on current models of human neuropsychology, such as models of working memory, neuropsychology of emotion and social cognition, models of implicit versus explicit learning, types of attention, and models of executive processes. S/U grading.

**468. Translational Neuroscience of Drug Addiction (1)** Lecture, one hour. Designed for graduate students. Students need cross-disciplinary knowledge to understand drug abuse etiology, behavior, consequences, and treatment. Coverage of major topics in drug addiction by emphasizing use of animal models to understand human addiction and to disclose how findings derived from human studies can be used to expand development of animal models. S/U grading.

**479. Genetics Clinic Presentation. (0)** Weekly clinical teaching session on patients seen in preceding genetics clinic. In-depth discussion on genetics of each disorder.

**480. Analysis of Human Chromosome Studies (1)** Chromosome karyotypes prepared in cytogenetics laboratory during preceding week presented and discussed with reference to clinical findings. Teaching includes interpretation of abnormal karyotypes and technical aspects of routine and special chromosome stains.

**482. Clinical Practicum in Childhood Anxiety and Related Disorders (3)** Clinic, two hours. Training in cognitive/behavioral assessment and treatment of children and adolescents with anxiety and related disorders. Didactic and experiential training, including direct patient care, clinical supervision, and participation in weekly team meetings. Letter grading.

**485. Human Genetics Seminar. (0)** Seminar, one hour. Preparation: introductory genetics course. Weekly lecture series intended for those interested in human genetics or in specific topic to be presented. Speakers are invited for their expertise or research in some special area related to human genetics and may be from UCLA or elsewhere. No grading.

**490. Educational Advocacy (2)** (Same as Law M431.) Clinic, two hours (12 weeks). How to provide educational advocacy based on IDEA, ADA, and Section 504 of Rehabilitation Act on behalf of children with learning disabilities, behavior disorders, and mental retardation. S/U or letter grading.

**596P. Individual Studies in Psychiatry (2 to 8)** Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study (to be structured by instructor and student at time of initial enrollment). Additional information and course proposal forms available in Office of Education, 38-216 Semel Institute. Directed individual research and study in psychiatry at graduate level. S/U or letter grading.

# Psychology

## Psychology Courses

### Lower Division

**10. Introductory Psychology (4)** Lecture, four hours. General introduction including topics in cognitive, experimental, personality, developmental, social, and clinical psychology; six hours of psychological research and a grade of C or better required of all departmental premajors. P/NP or letter grading.

**15. Introductory Psychobiology (4)** Lecture, three hours. Designed for nonmajors. Survey of genetic, evolutionary, physiological, pharmacological, and experiential factors affecting behavior. Using comparative approach where appropriate, emphasis on relevance of biological mechanisms to understanding of humans and their interaction with their environment. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**20A. MATLAB Programming for Behavioral Sciences (4)** Lecture, two hours; laboratory, one hour. Prior programming experience not required. Introduction to MATLAB and programming methods useful in experimental psychology. Reading and writing of code for conducting experiments, analyzing data, and modeling. P/NP or letter grading.

**20B. Advanced Topics in MATLAB Programming for Behavioral Sciences (4)** Lecture, two hours; laboratory, one hour. Requisite: course 20A. Introduction of advanced topics in MATLAB programming for behavioral sciences, including Psychtoolbox, advanced MATLAB graphics and input/output, simulations and modeling, and efficient MATLAB coding. Active programming during class and for homework required. P/NP or letter grading.

**30. Web Programming for Psychology (4)** Lecture, one hour; laboratory, three hours. Introduction to core technologies of Internet, with focus on applications that collect and analyze data. Server side programming includes Perl and MySQL databases. Client side programming includes HTML and JavaScript. P/NP or letter grading.

**85. Introduction to Cognitive Science (4)** Lecture, three hours. Exploration of computer metaphor of mind as an information-processing system, focusing especially on perception, knowledge representation, and thought based on research in cognitive psychology, neuropsychology, and artificial intelligence. Many examples from visual information processing.

**88A. Lower-Division Seminar: Stress, Adaptation, and Coping (4)** Seminar, three hours. Enforced requisite: course 10. Limited to freshmen. Physiological and psychological processes related to stresses and strains of daily living and potential relation of these processes to disease states. Examination of multifaceted nature of coping with stressors and exploration of strategies for stress management. May be repeated for credit. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Psychology (4)** Seminar, three hours. Enforced requisite: course 10. Study of selected topics in psychology at introductory level; seminar format designed for freshmen/sophomores. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

### Upper Division

**100A. Psychological Statistics (4)** Lecture, four hours. Requisites: course 10 with a grade of C or better, and one course from Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus. Designed for premajors. Basic statistical procedures and their application to research and practice in various areas of psychology. P/NP or letter grading.

**100B. Research Methods in Psychology (5)** Lecture, two hours; laboratory, two hours. Enforced requisite: course 10, with grade of C or better. Introduction to research methods and critical analysis in psychology. Lecture and laboratory topics include experimental and nonexperimental research methods, statistical design and analysis as applied to a broad range of basic and applied research issues. May be repeated once for credit. P/NP or letter grading.

**101. General Psychology Laboratory (4)** Laboratory, four hours. Requisites: courses 10, 100A, 100B. General laboratory course for psychology students to acquire key concepts in psychology through active participation in enriched environment. Use of current technologies (e.g., Web-based teaching, interactive computer demonstrations) in challenging atmosphere to learn how mind works. P/NP or letter grading.

**107. Asian American Personality and Mental Health (4)** (Same as Asian American Studies M117.) Lecture, three hours. Requisite: course 10. Foundations of personality development and mental health among Asian Americans. Topics include culture, family patterns, achievements, stressors, resources, and immigrant and minority group status. P/NP or letter grading.

**110. Fundamentals of Learning (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Experimental findings on animal and human conditioning; retention and transfer of training; relation of learning and motivation. Intended to provide empirical basis for theory and research in this area. P/NP or letter grading.

**111. Learning Laboratory (4)** Lecture, two hours; laboratory, three hours. Requisites: courses 10, 100A, 100B, 110. Designed for departmental majors. Laboratory experience with techniques in study of learning, especially with animals. Letter grading.

**112A. Basic Processes of Motivated Behavior (4)** Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Examination of some basic processes underlying motivated behavior, stressing environmental determinants of behaviors such as feeding, drinking, and reproduction-related behavior. Discussion of physiological mechanisms that contribute to such behaviors. Consideration of topics such as reinforcement, acquired motivation, and drug addiction. Evaluation of evidence obtained in laboratory studies conducted with animals. P/NP or letter grading.

**112B. Psychobiology of Fear and Anxiety (4)** Lecture, three hours. Requisites: courses 10, 100A, 110. Recommended: course 115. Designed for juniors/seniors. Presentation of biological and behavioral approaches to fear and anxiety, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research. P/NP or letter grading.

**112C. Psychobiology of Anxiety and Depression (4)** Lecture, two and one half hours; discussion, 30 minutes. Requisites: courses 110 and 115, or Neuroscience M101A, M101B, and M101C. Limited to juniors/seniors. Presentation of biological and behavioral approaches to anxiety and depression, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research. P/NP or letter grading.

**112D. Animal Cognition (4)** Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Investigation of scientific study of cognition and behavior in animals. Topics include perception and attention, working and reference memory, spatial cognition, timing and counting, concept formation, and abstract reasoning. Most discussions focus on laboratory findings with animals, as viewed from evolutionary framework concerned with natural histories of animals. P/NP or letter grading.

**112E. Decision Making and Brain (4)** Lecture, three hours. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Survey of neural mechanisms of value-based decision making from perspective of neoclassical economics. Discussion of theoretical models of valuation and decision making from economics and application to psychological and neuroscience studies of learning and decision making. P/NP or letter grading.

**115. Principles of Behavioral Neuroscience (4)** Lecture, three hours; discussion, one hour. Requisites: course 100A, Life Sciences 2 or 7A or 15. Not open to students with credit for course M117A (or Molecular, Cell, and Devel-

opmental Biology M175A or Neuroscience M101A or Physiological Science M180A). Designed for juniors/seniors. Nervous system anatomy, physiology, pharmacology, and their relationship to behavior. P/NP or letter grading.

**116A. Behavioral Neuroscience Laboratory (4)** (Formerly numbered 116.) (Same as Neuroscience M116A.) Lecture, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, and 115, or Neuroscience M101A and M101B (M101B may be taken concurrently). Not open for credit to students with credit for course 116B. Designed for Psychobiology, Psychology, and Neuroscience majors. Laboratory experience with various topics in behavioral neuroscience. Hands-on experience with important methodology and experimental approaches in neuroscience. P/NP or letter grading.

**116B. Human Neuropsychology Laboratory (4)** Laboratory, four hours. Requisites: courses 10, 100A, 100B, 115. Not open for credit to students with credit for 116A. Focus on human neural function in health and disease. Concentration on neural underpinnings of behaviors unique to humans. Hands-on empirical investigations of neural functions in which students themselves serve as subjects. Incorporation of neural bases of language and cognition, assessment in field of neuropsychology, and human neuroanatomy. Addresses disorders of nervous system that have profound impacts on human functioning such as stroke and central nervous system damage, dementia, mental illness, and pain. P/NP or letter grading.

**117A. Neuroscience: From Molecules to Mind—Cellular and Systems Neuroscience (5)** (Same as Molecular, Cell, and Developmental Biology M175A, Neuroscience M101A, and Physiological Science M180A.) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 7C, Physics 1B or 1BH or 5C or 6B. Students must receive grade of C– or better to proceed to next course in series. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

**117B. Neuroscience: From Molecules to Mind—Molecular and Developmental Neuroscience (5)** (Same as Neuroscience M101B, Molecular, Cell, and Developmental Biology M175B, and Physiological Science M180B.) Lecture, four hours; discussion, 90 minutes. Requisites: course M117A (with grade of C– or better), Life Sciences 7C. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

**117C. Neuroscience: From Molecules to Mind—Behavioral and Cognitive Neuroscience (5)** (Same as Neuroscience M101C, Molecular, Cell, and Developmental Biology M175C, and Physiological Science M180C.) Lecture, four hours; discussion, 90 minutes. Requisites: course M117A with grade of C– or better. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

**118. Comparative Psychobiology (4)** Requisite: course 115. Designed for junior/senior majors. Survey of determinants of species-specific behavior, including genetic influences and learning.

**119A. Neuropsychopharmacology of Emotion and Cognition (4)** Lecture, three hours. Requisite: course 115 or M117C. Limited to juniors/seniors. Analysis of basic pharmacologic principles, with emphasis on neurochemical modulation of emotional regulation and cognitive processes in normal and diseased state. P/NP or letter grading.

**119B. How Brains Learn to Construct Models of Environment (4)** Lecture, three hours. Requisite: course 115 or M117C. Designed for juniors/seniors. Every day we encounter something new. As result of these experiences, our brain builds cognitive models of our environment. This allows us to respond flexibly and efficiently when we encounter something similar in future. Discussion of types of models our brain builds that afford this flexible behavior, and how different regions of brain contribute in different ways to model building. Discussion of how different psychological disorders can be accounted for by disruptions in this process, providing key neural targets for pharmacological treatments. P/NP or letter grading.

**119C. Cognitive Neuroscience (4)** Lecture, three hours. Requisite: course 115 or M117C. Understanding complex mental functions depends on interplay of cognitive psychology and behavioral neuroscience. Designed to provide advanced undergraduate students with current perspectives on how complex processes of mind may be understood using neuroscience techniques. P/NP or letter grading.

**119D. Learning in Biological and Artificial Neural Networks (4)** Lecture, three hours. Requisite: course 115 or M117C. Limited to juniors/seniors. Introduction to fundamental principles of brain-inspired computing. Analysis of how

biological and artificial neural networks learn to solve problems by fitting models to data. Review of how advances in artificial intelligence help us to better understand the brain and nervous system. P/NP or letter grading.

**119E. Neurobiology of Fear (4)** Lecture, three hours. Animals face changing threats in nature, and have evolved the ability to dynamically alter behavior to minimize threat exposure and increase the probability of survival. Threats of different modalities and intensities can provoke distinct defensive behaviors, such as freezing or escape. Neural pathways involved in generating and suppressing these behaviors may differ depending on the type of threat, even when considering the same defensive behavior. For example, freezing caused by a fear conditioned tone and by a live predator are controlled by overlapping, but separate circuits. Introduction to the main types of techniques that are covered in the papers that are discussed. These papers demonstrate how and when distinct neural pathways are mobilized to generate the appropriate defensive behavior. Papers cover recent rodent experiments using state-of-the-art methods with high temporal, genetic, and anatomical specificity to investigate the circuits underlying defensive behaviors. May be repeated once for credit. P/NP or letter grading.

**119F. Neural Basis of Behavior (4)** Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Presentation of current data and theory concerning how neuron circuits produce behavior. Mechanisms of perception, response selection, motor pattern generation, learning, and motivation, with emphasis on operation of these processes in well-defined neural circuits in animals and humans. P/NP or letter grading.

**119I. Integration of Face and Brain (4)** Seminar, three hours. Requisite: course 115 or M117C. Faces play major role in social interactions in both humans and nonhuman primates and in other animals as well. Exploration of neuroanatomical, neurophysiological, and neurofunctional underpinnings of face processing (attractiveness, emotional expressions, facial skin, identity recognition, based on empirical studies that use behavioral responses in neuroimaging techniques, in effects of types of brain damage, in physiological responses, and in psychopathological states. Discussion of evolutionary approaches to faces, as well as relationship between specific genetic mutations affecting both brain and facial appearance. P/NP or letter grading.

**119J. Brain Bugs: Understanding Brain through Its Flaws (4)** Lecture, three hours. Requisite: course 115 or M117C. Designed for juniors/seniors. Psychology of brain flaws and limitations to understand how brain works by studying what it does well and understanding neuroscience of why brain is poorly suited to perform some tasks such as numerical calculations, memorizing lists and names, and making unbiased decisions. Topics include memory (types of memory, false memories, misinformation and memory, memory capacity) and cognitive biases (framing, anchoring, and temporal discounting). Exploration of underlying neural causes of brain flaws and limitations in context of brain's associative architecture. Basic neurophysiology, synaptic plasticity, cortical plasticity, neural basis of learning and memory, and some computational neuroscience. P/NP or letter grading.

**119K. Neurophilosophy (4)** Lecture, three hours. Requisite: course 115. Philosophy of mind has relied on introspection and thought experiments to explore consciousness, self, and free will. Field of neurophilosophy employs findings and methods of neuroscience to investigate these seemingly impenetrable constructs. Provides students with foundation in neurophilosophy, which includes basic understanding of philosophy of mind, consideration of phenomena including consciousness, volition, and self, and examination of scientific methods available for studying these phenomena. Exploration of student experiences of world and themselves within and demonstrations of how alterations in brain functioning due to injury, psychedelic drugs, and dreaming result in alterations in these phenomena. P/NP or letter grading.

**119L. Human Neuropsychology (4)** (Same as Neuroscience M119L.) Lecture, three hours. Recommended requisites: courses 115 (or M117A and M117C), 120A or 120B. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

**119M. Neural Circuits of Learning and Memory (4)** Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Introduction to classical and current literature on mechanisms of learning and memory from individual brain systems to circuits. P/NP or letter grading.

**119N. Visual System (4)** (Same as Neuroscience M119N.) Lecture, three hours. Requisite: course 115 or Neuroscience M101A or Physiological Science 111A. Ability to image and analyze visual world is truly remarkable feat. Coverage of anatomy and physiology of visual processing from retina to visual cortex through lectures, extensive reading, and discussions. P/NP or letter grading.

**119O. Psychology of Aging (4)** (Same as Gerontology M119O.) Requisite: course 115. Designed for juniors/seniors. Aging refers to developmental changes occurring at end stages of life. Some alterations that occur represent



improvement, others are detrimental. Examination of impact of aging process on mental phenomena and exploration of ways in which positive changes can be maximally utilized and impact of detrimental alterations minimized. P/NP or letter grading.

**119P. Emerging Topics in Neuroscience (4)** Lecture, two hours; discussion, one hour. Requisite: course 115. Emerging advanced lecture topics in neuroscience given by visiting speakers, with additional lectures by instructor on relevant background material. Reading of published scientific articles. P/NP or letter grading.

**119Q. Psychobiology of Sleep and Dreams (4)** Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Study of measurement of sleep, comparison of sleep in mammal species and sleep in sub-mammalian species, circadian rhythms and circadian control of sleep, development and aging of sleep, brain anatomical and neurochemical control of sleep, effects of sleep deprivation, sleep in psychiatric disorders, human sleep disorders, and properties of dreams. P/NP or letter grading.

**119U. Neural Correlates of Psychotic Disorders (4)** Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Exploration of genetic, cellular, structural, and functional abnormalities associated with psychotic states, including those seen in schizophrenia spectrum disorders, bipolar disorder, and drug-induced psychosis. Focus on common and unique neural findings associated with these abnormal states. Study includes review of clinical aspects of disorders covered. P/NP or letter grading.

**119V. Brain and Art (4)** Lecture, three hours. Requisite: course 115. Multiple forms of art express uniqueness of human brain and mind. Discussion of neural underpinnings of art in artist and viewer and links to evolutionary, biological, aesthetic, cognitive, and social roots of art. P/NP or letter grading.

**119X. Biology and Behavioral Neuroscience of Aging (4)** (Same as Gerontology M119X.) Lecture, three hours. Designed for juniors/seniors. Biologic mechanisms of aging process and its terminal phase, death, have been increasingly studied in recent years. Establishment of what is known experimentally about biology and behavioral neuroscience of aging and evaluation of theories developed to account for this knowledge. P/NP or letter grading.

**119Y. Psychobiology of Sexual Behavior (4)** Lecture, three hours. Requisite: course 115. Broad overview of scientific study of sexual behavior, with emphases on evolutionary, biological, psychological, and social considerations. Topics include historical antecedents of sex research, evolution of sex, influence of sex hormones on brain and behavior, sexual development, and roles of genes and hormones on sexual orientation. P/NP or letter grading.

**120A. Cognitive Psychology (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Survey of cognitive psychology: how people acquire, represent, transform, and use verbal and nonverbal information. Perception, attention, imagery, memory, representation of knowledge, language, action, decision making, thinking. P/NP or letter grading.

**120B. Sensation and Perception (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Acquisition of information about physical world through basic sensory mechanisms and perceptual processes. Perception of objects, surfaces, space, motion, and events. Connections between information, computations, and biological mechanisms in vision, audition, and other systems. P/NP or letter grading.

**121. Laboratory in Cognitive Psychology (4)** Laboratory, four hours. Requisites: courses 10, 100A, 100B, 120A or 120B. Designed for Psychology and Cognitive Science majors. Laboratory experience with methods and phenomena from research on human perception, memory, and cognition. P/NP or letter grading.

**124A. Language as Cognitive Science (4)** Lecture, three hours. Requisites: courses 100A, 100B, one programming course. Designed for junior/senior Cognitive Science majors. What mental mechanisms allow humans to transfer thoughts across minds through language? Through discussions and experiments, evaluation of behavioral, modeling, and neuroscientific data elucidating component processes of language system and its place within architecture of mind. P/NP or letter grading.

**124B. Fundamentals of User Experience (4)** Lecture, four hours. Requisite: course 120A or 120B. Designed for juniors/seniors. Thorough introduction to core principles and methods in field of user experience research and design. This relatively new discipline has evolved as psychologists and designers have begun to place greater focus on understanding and anticipating needs of humans using their products. P/NP or letter grading.

**124C. Human Memory (4)** Lecture, two hours; discussion, one hour. Requisite: course 120A or 120B. Designed for juniors/seniors. Analysis of recent research on basic processes and structural components that comprise the

human memory system. Discussion topics include practical implications of such research for instruction, marketing, and witness testimony. P/NP or letter grading.

**124D. Consciousness: Current Debates (4)** Seminar, three hours. Requisites: courses 100B, 115. Designed for juniors/seniors. Review of current issues in research on cognitive neuroscience of consciousness, with focus on modern theories of conscious perception, especially in visual modality so as to reflect its dominance in consciousness research. P/NP or letter grading.

**124E. Decision Psychology and Neuroscience (4)** Lecture, three hours. Requisite: course 120A or 120B. Designed for juniors/seniors. Analysis of behavioral and neuroscience studies of preference-based decision making, and related topics. P/NP or letter grading.

**124F. Thinking (4)** Lecture, three hours. Requisite: course 120A or 120B. Analysis of experimental studies of human categorization, reasonings, decision making, problem solving, creativity, and related topics. P/NP or letter grading.

**124G. Cognition and Successful Aging (4)** Lecture, three hours. Requisite: course 120A or 120B. Discussion of cognitive, social, and emotional changes that happen with age, how people live and learn, focus on what is important, achieve balance, and get better with age. Topics include happiness, memory, brain training, use of emerging technology, wisdom, humor, habits, retirement, and what constitutes successful aging. P/NP or letter grading.

**124J. Perception, Learning, and Learning Technology (4)** Seminar, three hours. Requisite: course 120A or 120B. Aspects of perception and cognition as they relate to learning and potential for learning technology. Basic knowledge about visual information processing, perceptual learning, knowledge representation, pattern recognition, attention, memory, and expertise, as well as research on learning, technology, and applications of perceptual and cognitive concepts in specific domains, with special focus on teaching and learning in mathematics. P/NP or letter grading.

**124K. Ethical, Legal, and Societal Implications of Cognitive Neuroscience (4)** Lecture, three hours. Requisite: course 120A or 120B. Designed for juniors/seniors. Critical examination of current and potential use of neuroimaging data in legal system as means to assess memories, truthfulness, culpability, and probability of future criminal behavior. Consideration of personal and societal consequences of use of cognitively enhancing drugs, memory dampening techniques, brain stimulation, and neural prostheses. Students debate range of current topics. P/NP or letter grading.

**126. Clinical Psychology Laboratory (4)** Laboratory, four hours. Requisites: courses 10, 100A, 100B, and 127A or 127B or 127C. Designed for departmental majors. Methods, designs, and issues in conduct of clinical psychology research. Students develop and conduct research. Content varies by instructor, with concentration on one of following: schizophrenia, mood disorders, anxiety disorders, childhood disorders, psychophysiological methods, observational methods with couples and families. P/NP or letter grading.

**127A. Clinical Psychological Science (4)** Lecture, three hours; discussion, one hour. Requisite: course 10. Not open for credit to students with credit for course 127B or 127C. Study of psychological disorders (e.g., depression, anxiety, substance use disorders, schizophrenia) across lifespan, including role of biological, behavioral, social, cognitive, and cultural factors, diagnosis and treatment approaches. Discussion of Stigma and practices that support inclusiveness. P/NP or letter grading.

**127B. Clinical Psychological Science: Biological Bases (4)** Lecture, three hours; discussion, one hour. Requisite: course 10. Not open for credit to students with credit for course 127A or 127C. Study of Biological processes involved in etiology, presentation, and course of psychiatric disorders, and biological targets or mechanisms of treatment. Emphasis on clinical neuroscience and behavioral genetics as scientific modalities to understand mood disorders, substance use disorders, psychosis, and others. P/NP or letter grading.

**127C. Clinical Psychological Science: Developmental Perspectives (4)** Lecture, three hours; discussion, one hour. Requisite: course 10. Not open for credit to students with credit for course 127A or 127B. Study of abnormal child development from infancy through adolescence and early adulthood. Clinical disorders include behavioral disorders, depression/anxiety, alcohol/substance disorders, eating disorders, and autism spectrum disorder. P/NP or letter grading.

**129C. Culture and Mental Health (4)** Lecture, two hours; discussion, one hour. Requisites: courses 10, 100A. Introduction to study of culture and human behavior in general, and culture and mental health in particular. Emphasis on cultural groups that comprise major U.S. ethnic groups (i.e., African Americans, Latinos/Chicanos, Asian Americans, and American Indians). P/NP or letter grading.

**129E. Human Sexuality (4)** Lecture, three hours. Designed for senior Psychology majors. Overview of psychology of human sexuality. Psychological research, assessment, and therapy described in a format which highlights their significance for understanding human sexual functioning. Psychological mechanisms underlying expression of human sexuality. P/NP or letter grading.

**129F. Clinical Psychology of Childhood and Adolescence (4)** Lecture, two hours; discussion, one hour. Requisite: course 127A or 127B or 127C. Survey of child and adolescent psychopathology and psychotherapy from a developmental perspective. Coverage includes such conditions as anxiety disorders, depression, conduct and attention problems, eating disorders, and autism, with information on prevalence, causes, common treatments and their effects. P/NP or letter grading.

**130. Developmental Psychology (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Elaboration of developmental aspects of physical, mental, social, and emotional growth from birth to adolescence. P/NP or letter grading.

**131. Research in Developmental Psychology (4)** Discussion, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, and 130 or one course from 133A through 133I. Designed for Psychology and Cognitive Science majors. Forms of scientific writing; ethics of research, especially with minors; special advantages and problems of asking developmental research questions; relevant methodologies for experimental and observational work; data analyses and data presentation options. P/NP or letter grading.

**132A. Learning Problems, Schooling Problems: Policy and Practice (4)** Lecture, three hours. Designed for juniors/seniors. Exploration of different orientations to persons with learning problems, emphasizing assessment and intervention approaches and psychological impact of such approaches. Topics include interaction of learner and environment, sociopolitical nature of classroom, psychological impact of schooling, grades, and evaluations, process versus goal focus in learning. P/NP or letter grading.

**132B. Mental Health in Schools: Policy and Practice (4)** Seminar, three hours. Limited to juniors/seniors. Policies, models, and mechanisms for mental health in schools. Psychopathology placed into broader perspective of normal development and psychosocial problems to explore range of theoretical, practical, and ethical issues. P/NP or letter grading.

**133A. Adolescent Development (4)** Lecture, three hours. Requisites: courses 10, 100A. Examination of cognitive, social, physical, and physiological development of the adolescent. P/NP or letter grading.

**133B. Cognitive Development (4)** Lecture, three hours. Requisites: courses 10, 100A. Major theories, approaches, and issues in study of cognitive development. Readings include original research on important topics such as development of perception, language, thinking, and problem solving, and acquisition of concepts and domain-specific language. P/NP or letter grading.

**133C. Language Development (4)** Lecture, three hours. Requisites: courses 10, 100A. Application of principles of cognitive development, learning, and perception to study of language development. Topics include first and second language acquisition (sounds, meanings, grammatical structures), learning mechanisms, communication skills, and relation between language and thought in children. P/NP or letter grading.

**133D. Social and Personality Development (4)** Lecture, three hours. Requisites: courses 10, 100A. Theory and research on social and personality development during childhood. Topics include parent/child attachment, temperament, self-control, aggression, sex-typing, self-concept, moral reasoning and behavior, social status and social skills, and peer group relations. P/NP or letter grading.

**133E. Perceptual Development (4)** Lecture, three hours. Requisites: courses 10, 100A. Topics include origins and development of human perceptual abilities, origins of knowledge about functionally important aspects of the environment, ecological and computational issues in perception, research and theory about initial perceptual capacities, and some sensory foundations. P/NP or letter grading.

**133F. Psychology and Education (4)** Lecture, three hours. Requisites: courses 10, 100A. Application of principles of cognitive development, learning, and perception to educational problems. Topics include general instructional issues, psychology of reading and mathematics, exceptional children, early childhood education, and education of the disadvantaged. P/NP or letter grading.

**133G. Culture and Human Development (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Role of culture in human development through psychology, anthropology, and autobiography. Students relate material from lectures and readings, through empirical research projects, to diverse cultural backgrounds in class, at UCLA, and in the broader community. P/NP or letter grading.

**133I. Applied Developmental Psychology (4)** Lecture, three hours. Requisites: courses 10, 100A. Application of developmental psychology to issues pertaining to improving well-being of children and their families. Topics include quality of child care, patterns and ranges of normal child behaviors, developmental disabilities, safety, legal, and public policy issues, child-rearing practices. P/NP or letter grading.

**134A. Applied Developmental Psychology: Infant/Toddler Care and Education (4)** Lecture, three hours. Designed for Applied Developmental Psychology minors. Coverage of children zero to three years old. Topics include physical, cognitive, social, and emotional development of children, developmentally appropriate practices, child care quality, role of educator/caregiver, and other related issues. Letter grading.

**134B. Applied Developmental Psychology: Preschool/School-Age Care and Education (4)** Lecture, three hours. Designed for Applied Developmental Psychology minors. Coverage of children three to eight years old. Topics include physical, cognitive, social, and emotional development of children, developmentally appropriate practices, child care quality, role of educator/caregiver, and other related issues. Letter grading.

**134C. Advanced Applied Developmental Psychology (4)** Seminar, one hour; fieldwork, eight hours. Requisites: courses 134A, 134B, 134D, 134E. Designed for Applied Developmental Psychology minors. Continuing fieldwork in advanced applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

**134D. Fieldwork in Applied Developmental Psychology (2)** Fieldwork, 86 hours per term. Enforced corequisite: course 134A. Designed for Applied Developmental Psychology minors. Fieldwork in applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

**134E. Advanced Fieldwork in Applied Developmental Psychology (2)** Fieldwork, 86 hours per term. Enforced corequisite: course 134B. Designed for Applied Developmental Psychology minors. Fieldwork in advanced applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

**134F. Infant Care and Development (4)** Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. In-depth study of research methods, current research findings, and theories used to understand infant development from conception through second year of life, including cross-cultural application of this knowledge to various populations. P/NP or letter grading.

**134G. Early Childhood Curriculum (4)** Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. Examination of methods, materials, and philosophies that enhance development of children in context of childcare settings. Topics include issues of multiculturalism, antibias curriculum, and special needs adaptations. P/NP or letter grading.

**134I. Child, Family, and Community (4)** Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. Exploration of role of early childhood educators within context of diverse racial, ethnic, economic, and cultural backgrounds and impact of these dynamics on children's development. P/NP or letter grading.

**134J. Dynamic Perspectives on Parenting (4)** Lecture, three hours. Overview of key tasks of parenting and of changes in parent-child relationship from birth through young adulthood. Overview of theories, discussion of transition to parenthood, and examination of parenting across developmental stages. Examination of how parenting and parent-child relationship are affected by family dynamics and contextual factors. Study of effective child socialization techniques and their theoretical and empirical foundations to meet children's developmental needs; build positive and mutually respectful parent-child relationships; and provide positive guidance to promote self-regulation, competence, and socially responsible behavior. P/NP or letter grading.

**134K. Effects of Early Adversity and Trauma (4)** Lecture, three hours. Examination of extensive evidence of disruptive impact of early adversity. Study offers insights into causal mechanisms that link early adversity to later impairments in learning, behavior, and both physical and psychological well-being. Review of research on common childhood stressors, individual and contextual factors that put children at risk for developmental deficits, and protective factors that promote successful coping and healthy adjustment. P/NP or letter grading.

**135. Social Psychology (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Interrelationships between the individual and his social environment. Social influences on motivation, perception, and behavior. Development and change of attitudes and opinions. Psychological analysis of small groups, social stratification, and mass phenomena. P/NP or letter grading.

**136A. Social Psychology Laboratory (4)** Lecture, one hour; laboratory, four hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Introduction to research designs and methods used to test social psychological hypothesis, including experiments, observation, content analysis, and/or questionnaires. P/NP or letter grading.

**136B. Nonexperimental Methods in Social Psychology (4)** Lecture, two hours; laboratory, two hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Research experience with nonexperimental methods for study of social attitudes or behavior, including fieldwork with survey research, naturalistic observation, or questionnaires. P/NP or letter grading.

**136C. Experiments in Racial and Ethnic Politics (4)** (Same as Political Science M183.) Lecture, three hours; laboratory, one hour. Research practicum consisting of designing, analyzing, and reporting effective research results. Topics include studying people's political attitudes, beliefs, and behaviors through carefully-designed experiments. P/NP or letter grading.

**137A. Neuroscience of Social Perception (4)** Lecture, three hours. Requisites: courses 10, 100A. Limited to juniors/seniors. Integration of cognitive neuroscience, social psychology, and sensory perception research to explore how social information is perceived and how social factors shape perception of world around us. Emphasis on neural mechanisms underlying these phenomena. P/NP or letter grading.

**137B. Nonverbal Communication and Body Language (4)** (Same as Communication M113.) Lecture, three hours. Examination of how various forms of nonverbal communication convey meaningful information to perceivers, with focus on both production and perception of multiple communication formats (e.g., affect expression of face and body, gesture, and kinematics), with strong emphasis on body language. Readings from variety of related fields. P/NP or letter grading.

**137C. Intimate Relationships (4)** Lecture, three hours. Requisites: courses 10, 100A. Limited to juniors/seniors. Introduction to how social scientists think about, study, and treat intimate relationships, with emphasis on understanding how relationships change over time. Topics include attraction, relationship formation, conflict resolution, social support, sex, role of individual differences, and external circumstances. P/NP or letter grading.

**137D. Psychology of Diversity (4)** Lecture, three hours. Requisites: course 10. Designed for juniors/seniors. Examination of how culture, socioeconomic class, ethnicity, gender, and other group differences are created, perceived, and maintained. Emphasis on how scientific evidence informs approaches to contemporary problems including management of diverse workforce, immigrant integration, racial tensions, and health/educational disparities. P/NP or letter grading.

**137E. Work Behavior of Women and Men (4)** (Same as Gender Studies M137E.) Lecture, two and one half hours. Requisite: course 10 or Gender Studies 10. Designed for seniors. Examination of work behavior of women and men. Topics include antecedents of career choice, job findings, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles. P/NP or letter grading.

**137F. Introduction to Cultural Psychology (4)** Lecture, three hours. Examination of sociocultural sources of diversity in psychological self, emotion, motivation, development, and relationships. Broad survey of how ideas and practices associated with various regions of world, social class, race/ethnicity, gender, and religion construct, maintain, and change psychological experiences and tendencies. Focus on theory and research in field of cultural psychology. Discussions on how material covered relates to everyday life and real-world social issues. P/NP or letter grading.

**137G. Social Cognitive Neuroscience (4)** Lecture, three hours. Principles of social cognitive neuroscience (SCN) and survey of broad array of topics in field. SCN is fundamental merging of social science questions and neuroscience methods, with particular emphasis on functional magnetic resonance imaging (fMRI). P/NP or letter grading.

**137I. Social Influence (4)** Lecture, three hours. Requisite: course 10. Study of theory and research that addresses influence and persuasion from social psychological perspective. Particular attention given to reviewing theory and empirical research on conformity, compliance, and obedience. Covers attitudes and their measurement, factors that make persuasive messages effective in changing attitudes, social influence online, cross-cultural influence, and resisting persuasion and influence attempts. Application of findings from social influence literature to understanding influence processes in various social contexts. P/NP or letter grading.

**137J. Self and Identity (4)** Seminar, three hours. Requisite: course 10. Designed for juniors/seniors. Examination of theory and research that addresses self from social psychological perspective. Topics focus on self-knowledge, how self is represented in memory, illusions about self, self-esteem, implicit (subconscious) self, self-regulation, social comparison, self-relevant emotions, and influence of culture on self. P/NP or letter grading.

**137K. Psychology of Emotion (4)** Lecture, three hours. Designed for junior/senior psychology majors. Broad overview of science of human emotion. Covers topics such as history of emotion research, current dominant models of emotion, purpose of facial expressions, experience of emotions in our closest social relationships, how we regulate our emotions, whether emotions can make us sick, and what it means to be happy. Exploration of range of perspectives in psychology, ranging from social, cultural, developmental, health, and clinical psychology. Consideration also of cognitive and behavioral neuroscience. P/NP or letter grading.

**137M. Social Cognition (4)** (Same as Communication M123.) Lecture, three hours. Survey of research from field of social cognition, with emphasis on understanding cognitive processes involved in interpersonal and intergroup communication. Topics include attention, interpretation, evaluation, judgment, attribution, and memory processes. Consideration of both controlled and automatic processes. Discussion of roles of motives, goals, and affective variables. P/NP or letter grading.

**137N. Conscious Experience: Social Cognitive Neuroscience Approach (4)** Lecture, three hours. Conscious experience is arguably the most remarkable thing in the universe, and yet it is largely ignored because it is the background precondition for everything else in our lives and because it is difficult to study scientifically. Examination of what is known and, just as importantly, what is unknown about conscious experience. P/NP or letter grading.

**138. Electoral Politics: Political Psychology (4)** (Same as Political Science M141A.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 10. Designed for juniors/seniors. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues.

**139. Perspectives on Autism and Neurodiversity (4)** (Same as Disability Studies M139.) Seminar, three and one half hours. Genealogy of autism as diagnostic category and cultural phenomenon from its historical roots as new, rare, and obscure condition in early 1940s to its current contested status as minority identity and/or global epidemic. Examination of material sourced from various fields and disciplines invested in autism, including psychology, neuroscience, arts and humanities, popular media, anthropology, activism, and critical autism studies. Students encounter and analyze multiple perspectives on autism and put them in conversation with one another. Attention paid to way people on spectrum define, explain, and represent their own experiences of autism and discussion of what ramifications of these multiple framings are in context of autism intervention strategy and disability policy today. Letter grading.

**140. Introduction to Study of Aging (4)** (Same as Social Welfare M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

**142H. Advanced Statistical Methods in Psychology (Honors) (4)** Lecture, three hours; laboratory, two hours. Requisites: courses 100A, 100B. Survey of statistical techniques commonly used in psychology, education, and behavioral and social sciences: correlational techniques, analysis variance, and multiple regression. P/NP or letter grading.

**144. Measurement and Its Applications (4)** (Same as Statistics M154.) Lecture, three hours. Requisite: one course from 100A, Statistics 10, 12, or 13. Selected theories for quantification of psychological, educational, social, and behavioral science data. Classical test, factor analysis, generalizability, item response, optimal scaling, ordinal measurement, computer-adaptive, and related theories. Construction of tests and measures and their reliability, validity, and bias. P/NP or letter grading.

**147A. Psychology of Lesbian Experience (4)** (Same as Gender Studies M147A and Lesbian, Gay, Bisexual, Transgender, and Queer Studies M147A.) Lecture, two hours; discussion, one hour. Requisite: course 10 or Gender Studies 10 or Lesbian, Gay, Bisexual, Transgender, and Queer Studies M114. Designed for juniors/seniors. Review of research and theory in gender studies and psychology to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

**149. Language Development and Socialization (4)** (Same as Anthropology M152P.) Lecture, three hours; discussion, one hour (when scheduled). Exploration of processes through which children learn structures and practices of language and become competent participants in linguistic and social worlds around them. Examination of language use and socialization over childhood, across communities of practice, and across different ethnic and socioeconomic groups. Bridges work from anthropology, psychology, linguistics, and cognitive science. Topics include cross-cultural perspectives on child devel-

opment and wide range of methodological approaches. Examination of ways in which language development and socialization interface with culture, modality, inequality, education, and cognition. P/NP or letter grading.

**150. Introduction to Health Psychology (4)** Lecture, three hours. Requisite: course 10. Areas of health, illness, treatment, and delivery of treatment that can be elucidated by understanding of psychological concepts and research, psychological perspective on these problems, and how psychological perspective might be enlarged and extended in medical area. P/NP or letter grading.

**151. Research Methods in Health Psychology (4)** Laboratory, four hours. Enforced requisites: courses 10, 100A, 100B, 150. Research methods used in health psychology, including experimental, quasi-experimental, and nonexperimental methods. Examples and projects from health psychology. P/NP or letter grading.

**152. Mind-Body Interactions and Health (4)** Lecture, three hours. Designed for junior/senior Psychology and Psychobiology majors. Examination of bidirectional interactions between mind and body and how these interactions influence physical health. Topics include impact of stress, emotions, personality, and social world on biological systems and health. Discussion of mind-body interventions designed to reduce stress and improve health, including scientific research on yoga and meditation. P/NP or letter grading.

**161. Behavior and Brain Development (4)** Lecture, three hours. Requisites: courses 10, 100A. Limited to juniors/seniors. Exploration of relationship between brain development and behavior. Examination of how cognitive neuroscience can inform study of development and how developmental approach can advance progress in cognitive and developmental sciences. P/NP or letter grading.

**162. Psychology of Addiction (4)** Lecture, three hours; discussion, one hour (when scheduled). Survey of topics covering psychological and neurobiological theories of addiction, pharmacological effects of drugs and abuse, etiology, assessment, diagnosis, and treatment. P/NP or letter grading.

**164. Puberty and Sleep (4)** Lecture, three hours. Requisite: course 10. Limited to juniors/seniors. Exploration of how normative biological and hormonal changes during adolescence influence adolescent behavior and well-being. Focus specifically on puberty and sleep, which both lead to consequential effects on behavior, health, and brain development. P/NP or letter grading.

**165. Psychology of Gender (4)** (Same as Gender Studies M165.) Lecture, three hours. Consideration of psychological literature relevant to understanding contemporary sex differences. Topics include sex-role development and role conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and impact of gender on social interaction. P/NP or letter grading.

**166. Neurobiology of Bias and Discrimination (4)** (Same as Neuroscience M187 and Physiological Science M106.) Lecture, four hours. Limited to junior/senior neuroscience, physiological science, and psychology students. Exploration of aspects of mammalian brain function that generate preference, bias, and discrimination. Consideration of research at multiple levels of analysis from genetics to neural circuits to behavior. Discussion of societal implications of these research findings, including their relevance to public policies and criminal justice system. Letter grading.

**167. Digital Media and Human Development (4)** Lecture, three hours. Designed for junior/senior majors. Examination of social science research on media and technology during development to understand positive and negative roles of technology and media in children's lives. Topics include social media, video games, brain development, and learning with technological tools from age 2 through 18 (and through emerging adulthood). May be repeated for credit. P/NP or letter grading.

**168. Organizational Psychology (4)** Lecture, three hours. Introduction to variety of topics within field of organizational psychology, examining organizational behavior from variety of perspectives. Focus on individuals: what motivates them, how do they learn best, how can they manage their careers in this rapidly changing organizational landscape, and how can they develop leadership skills. Focus on groups, entire organizations, or relationships between organizations and external environment: what makes some groups work effectively and some not, how can organizations be sensitive to diversity and inclusion in workplace, what trends and forces have impact on organizations today, and what are best ways to bring about change in organizations. P/NP or letter grading.

**172. Afro-American Woman in U.S. (4)** (Same as African American Studies M172 and Gender Studies M172.) Lecture, two and one half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

**174. Health Disparities (4)** (Same as Life Sciences M174.) Lecture, three hours. Examination of health disparities and ways in which societal responses to race and ethnicity in combination with variety of other factors create differential quality and access to healthcare resulting in poor health outcomes in racial/ethnic minorities. Basic foundation for critical thinking about assumptions that shape life sciences, medical research, clinical practice, and social and behavioral sciences as they relate to racial and ethnic minority populations and to teach students to integrate concepts of culture and health disparities into other social, biological, political, psychological, genetic, and clinical health interests. P/NP or letter grading.

**175. Community Psychology (4)** Designed for junior/senior Psychology majors. Application of psychological principles to understanding and solution of community problems. Topics include community development, community mental health problems, drugs, racism, and rehabilitation of prisoners.

**176SL. Addressing Social Determinants in Racial/Ethnic Minority Communities to Reduce and Prevent Health Disparities (4)** (Same as Community Engagement and Social Change M175SL.) Seminar, two hours; fieldwork, 10 hours. Examination of how addressing social determinants in racial/ethnic minority communities can reduce or eliminate physical and mental health disparities. Currently in racial and ethnic minority communities, health status of individuals can be function of built environment, exposure to pollutants and toxins, scarcity of supermarkets or stores with fresh produce and nutritional food, noise levels, and variety of other stressors and unhealthy conditions. Health interventions are often focused on individual-level change or increases in access to healthcare with little in way of changing risk environments. Designed to identify and provide opportunities to understand how to address social determinants related to negative health outcomes in racial/ethnic minority neighborhoods and communities and to experience how to use social determinants literature in service of collaborative activities with community organizations. P/NP or letter grading.

**177. Counseling Relationships (4)** Lecture, two hours; discussion, two hours. Requisites: courses 10, 100A, and 127A or 127B or 127C. Designed for junior/senior Psychology majors. Conceptual and empirical foundations of psychological counseling; comparison of alternative models of counseling processes. Emphasis on counseling approaches in community mental health areas such as drug abuse, suicide prevention, and crisis intervention. P/NP or letter grading.

**178. Human Motivation (4)** Lecture, three hours. Designed for juniors/seniors. Examination of theories of human motivation, experimental findings supporting the theories, and history of study of motivation. Topics include sociobiology, conflict, aspiration level, achievement strivings, and causal attributions.

**182A. Principles of Research in Relationship Science (1)** Seminar, one hour. Introduction to research foundation of relationship science (e.g., leading theories, common measures and research designs, key statistics). Students learn important professional skills in conducting research and in applying to graduate school. P/NP grading.

**182B. Principles of Research in Relationship Science (1)** Seminar, one hour. Introduction to research foundation of relationship science (e.g., leading theories, common measures and research designs, key statistics). Students learn important professional skills in conducting research and in applying to graduate school. P/NP grading.

**182C. Principles of Research in Relationship Science (1)** Seminar, one hour. Introduction to research foundation of relationship science (e.g., leading theories, common measures and research designs, key statistics). Students learn important professional skills in conducting research and in applying to graduate school. P/NP grading.

**184A. Psychology Research Opportunity Program Seminar (2)** Seminar, 90 minutes. Designed to bring together Psychology Research Opportunity Program (PROPS) students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

**184B. Psychology Research Opportunity Program Seminar (2)** Seminar, 90 minutes. Designed to bring together Psychology Research Opportunity Program (PROPS) students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

**185. Research Practicum in Psychology (3)** Laboratory, seven hours. Corequisite: course C194D. Limited to juniors/seniors. Practical applications of psychology through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**186A. Cognitive Science Laboratory: Introduction to Theory and Simulation (4)** Laboratory, four hours. Requisites: courses 10, 85, 100A, 100B, Program in Computing 10A, 10B. Designed for junior/senior departmental majors. Models of cognition within framework of explanation at multiple levels of abstraction. Examples of elementary models in multiple psychological domains (e.g., visual perception, categorization, learning, reasoning, and problem solving). Types of models include neural networks and symbolic models. Lectures and discussions interwoven with computer simulations written in MATLAB. P/NP or letter grading.

**186B. Cognitive Science Laboratory: Neural Networks (4)** Laboratory, four hours. Requisites: courses 10, 85, 100A, 100B, Mathematics 31A, 31B, Program in Computing 10A, 10B. Designed for junior/senior departmental majors. Laboratory experience in neural network modeling of perception and cognition. Specific topics include essential neurophysiology, basic architectures, learning, and programming techniques. Principles illustrated and discussed in context of models of specific perceptual and cognitive processes. Simulations written in Pascal. P/NP or letter grading.

**186C. Cognitive Science Laboratory: Psychophysical Theories and Methods (4)** Lecture, two hours; laboratory, two hours. Requisites: courses 10, 85, 100A, 100B. Designed for junior/senior departmental majors. Lectures and laboratory work that examine perceptual measurement procedures (psychophysical methods) and cognitive processing and decision models on which procedures are based, with particular emphasis on signal detection theory and its applications. Letter grading.

**186D. Laboratory in Functional Neuroimaging (4)** Laboratory, four hours. Enforced requisites: courses 10, 100A, 100B. Limited to departmental majors. Introduction to study of brain with functional resonance imaging (fMRI). All major aspects to be discussed, from physical basis of MR signal to data analysis. Letter grading.

**186E. Introduction to Learning Theories (4)** Laboratory, four hours. Requisites: courses 10, 100A, 100B. Introduction to major learning theories including behaviorism, information processing, and Piagetian constructivism. Analysis of strengths and weaknesses of the theories, and study of their practical implications on teaching practices. For example, how instruction would be designed in a behaviorist perspective; and how that would differ from taking a constructivist approach. Study of how taking a specific theoretical perspective influences what one sees as a researcher or what one does as a teacher. May be repeated once for credit. P/NP or letter grading.

**188A. Special Seminars: Psychology (4)** Seminar, three hours. Limited to juniors/seniors. Departmentally sponsored experimental or temporary seminars on selected topics in psychology, such as those taught by visiting faculty members. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

**188B. Special Courses in Psychology (4)** Lecture, three hours. Designed for junior/senior majors. Departmentally sponsored experimental or temporary courses on topics of psychological interest, such as those taught by visiting faculty members. Consult Schedule of Classes for topics and instructors. May be repeated for credit. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Psychology (1)** Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**191. Variable Topics Research Seminars: Psychology (1)** Seminar, one hour. Limited to juniors/seniors. Research seminar on selected topics in psychology. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP grading.

**191AH. Departmental Honors Research Seminars (2)** Seminar, two hours. Enforced corequisite: course 198. Course 191AH is requisite to 191BH, which is requisite to 191CH. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with faculty sponsor and discussion of student and faculty research presentations. Information and applications may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

**191BH. Departmental Honors Research Seminars (2)** Seminar, two hours. Requisite: course 191AH. Enforced corequisite: course 198. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with faculty sponsor and discussion of student and faculty research presentations. Information and applications may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

**191CH. Departmental Honors Research Seminars (2)** Seminar, two hours. Requisite: course 191BH. Enforced corequisite: course 198. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with faculty sponsor and discussion of student and faculty research presentations. Information and applications may be obtained from Undergraduate Advising Office, 1531 Franz Hall. If approved in advance by Undergraduate Office, courses 191CH and 198 may be applied toward elective course requirement for any Psychology Department major. Letter grading.

**192. Educational Practices in Psychology (4)** Seminar, three hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in courses related to psychology. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. Only 12 units from any combination of courses 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**193. Journal Club Seminars: Psychology (1)** Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature of particular field or attendance at and write-ups of speakers series. May be repeated for credit. P/NP grading.

**194A. Internship Seminars: Psychology (2)** Seminar, two hours. Corequisite: course 195A. Forum to discuss internship experiences and learn about career development. Students are exposed to professional literature in clinical science and related fields. May be repeated three times for credit. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. P/NP grading.

**194B. Research Group Seminars: Psychology (1)** Seminar, one hour. Corequisite: course 196A (3-unit option). Limited to juniors/seniors who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**194C. Research Group Seminars: Cognitive Science (1)** Seminar, one hour. Corequisite: course 196B (3-unit option). Limited to junior/senior Cognitive Science majors who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**C194D. Research Group Seminars: Practicum (1)** Seminar, one hour. Corequisite: course 185. Designed for undergraduate students who are part of research group that meets with graduate students. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Concurrently scheduled with course C296B. P/NP grading.

**195A. Community Internships in Psychology (2)** Tutorial (approved community setting), six hours. Corequisite: course 194A. Limited to juniors/seniors. Internship in applications of psychology in supervised setting in community agency or business. Students meet on regular basis with sponsor and provide periodic reports of their experience. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract with supervising placement sponsor required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**195B. Corporate Internships in Cognitive Science (4)** Tutorial, eight hours. Limited to junior/senior Cognitive Science majors. Practical applications of cognitive science through internship experience in supervised setting. Students meet on regular basis with supervisor and provide periodic reports of their experience. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract with supervisor required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**196A. Research Apprenticeship in Psychology. (3 to 4)** Tutorial, eight hours. Corequisite: course 194B. Limited to juniors/seniors. Practical applications of psychology through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**196B. Research Apprenticeship in Cognitive Science. (3 to 4)** Tutorial, eight hours. Corequisite: course 194C. Limited to junior/senior Cognitive Science majors. Practical applications of cognitive science through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**198. Honors Research in Psychology (2)** Tutorial, two hours. Enforced corequisite: course 191AH or 191BH or 191CH. Limited to juniors/seniors and psychology honors program students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

**199A. Senior Project in Psychology (4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of psychology faculty mentor. Culminating paper required. Only one 4-unit 199 course may be taken per term. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

**199B. Senior Project in Psychology (4)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of psychology faculty mentor. Culminating paper required. Only one 4-unit 199 course may be taken per term. May be taken only once for letter grade. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

## Graduate

**200A. Pavlovian Processes (4)** Lecture, three hours. Basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning, and species-specific behavior. S/U or letter grading.

**200B. Instrumental Conditioning (4)** Lecture, three hours. Topics include animal learning and conditioning and application of learning principles to goal-directed action, motivational processes, and goal selection in nonhuman animals. S/U or letter grading.

**200C. Representational Processes (4)** Lecture, three hours. Preparation: undergraduate learning and physiological psychology courses. Review of experimental data on and models of construction of spatial, temporal, and numerical representations. Explicitly symbolic models compared and contrasted with associative models. Implications for neurobiology of learning and memory. S/U or letter grading.

**201. Current Issues in Learning and Behavior (1)** Discussion, 90 minutes. Designed for graduate students. Required of learning and behavior students a minimum of four times (entire first year and winter of second year). Presentation of papers of current interest in learning, behavior, or applied behavioral analyses by experts in the field. Evaluation of their significance and methodology in detail. May be repeated for credit. S/U grading.

**203. Grant Writing for Neuroscientists (4)** Seminar, three hours. Focus on writing and preparing National Research Service Award (NRSA) training grant application. Covers writing components of grant, which are reviewed and worked on in class. Students end with well-thought-out, written NRSA proposal. Focus on specific aims and research strategy components of grant. S/U or letter grading.

**204A. Basic Motivational Processes (4)** Lecture, three hours. Designed for graduate students. Analysis, using behavioral systems approach, of basic motivated behavior such as feeding, drinking, foraging, and reproduction. Same approach also applied to phenomena such as acquired motivation, reinforcement, and drug addiction. Historical survey of behavioral analyses of motivation and goal-directed behavior. S/U or letter grading.

**204D. Fear and Anxiety (4)** Lecture, three hours. Preparation: graduate training. Presentation of theoretical and empirical advances, from biological and behavioral perspectives, in the area of fear and anxiety. Integration of animal and human research.

**205A. Cortical Plasticity and Perceptual Learning (2)** Lecture, three hours. Designed for graduate students. Examination of neural basis of perceptual learning. Overview of literature on cortical plasticity and how it relates to different forms of perceptual learning in visual, auditory, and somatosensory modalities. Review of mechanisms of cortical plasticity, including basic features of long-term synaptic plasticity and computational models of cortical processing. Letter grading.

**205E. Neural Basis of Reward and Value (2)** Five-week course. Lecture, three hours. Designed for graduate students. Overview of neural systems underlying reward and value. Emphasis on mechanisms of reinforcement learning and cost-benefit or value-based decision making. Readings drawn from primary literature in animal research. Letter grading.

**205F. Physiology of Learning (2)** Lecture, three hours. Designed for graduate students. Search for anatomical loci of engrams. Cell biology of plasticity, including electrophysiological and molecular approaches. Theories of how neural circuitry might be organized to make learning possible. Letter grading.

**205J. Current Perspectives on Neural Representations (2)** Lecture, three hours. Designed for graduate students. Exploration of contemporary conceptions of neural representations through in-depth discussion of recent, primary literature. Particular emphasis given to issue of how advances in experimental and computational methods drive novel theoretical perspectives. Letter grading.

**205K. Vision Neurobiology (2)** Lecture, three hours. Designed for graduate students. Exploration of anatomy, physiology, and computation in visual system, focusing on retina, visual cortex, and overall performance. Letter grading.

**205M. Neuropsychology of Perception (2)** Lecture, three hours (five weeks). Designed for graduate students. Examination of neural substrates of high-level visual processing. Topics include agnosias and characteristics of electrophysiological responses recorded in primate temporal lobe. Discussion of issues regarding neural representation of knowledge. Letter grading.

**205N. Dopamine Prediction Error: Case Study of Reinforcement Learning Theory (2)** Seminar, three hours. Overview of dopamine prediction error—signal exhibited when there is difference between expected outcome and reality—and theories that have been used to describe it. Discussions of papers describing studies that led to discovery of prediction error, its application to temporal difference reinforcement learning (TDRL), and challenges to this theory by recent work using optogenetics. Letter grading.

**205O. Neurobiology of Defensive Behaviors (2)** Lecture, three hours (five weeks). Designed for graduate students. Overview of modern literature in rodents dissecting anxiety, fear, and panic circuits. Letter grading.

**206B. Introduction to Biological Signal Processing (4)** Lecture, three hours. Introduction to basic electronics and some common types of signal processing of value in laboratory research in animal and human neuroscience, with applications in human physiology such as neuroimaging, electroencephalogram (EEG), and cardiovascular phenomena. S/U or letter grading.

**207. Seminar in Behavioral Neuroscience (4)** Seminar, three hours. Requisite: Neuroscience M203 or consent of instructor. Seminar on topics in Behavioral Neuroscience. May be repeated for credit. S/U or letter grading.

**208. Biology of Learning and Memory (4)** (Same as Neurobiology M200G and Neuroscience M220.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel ground-breaking models. Letter grading.

**212. Evaluation of Research Literature in Physiological Psychology (1)** Discussion, 90 minutes. Papers of current interest presented by members of seminar and their significance and methodology discussed and criticized in depth. May be repeated for credit. S/U grading.

**213. Neuroimaging and Brain Mapping (4)** (Same as Neuroscience CM272 and Physiological Science M272.) Lecture, three hours. Requisites: Neuroscience M201, M202. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Letter grading.

**215A. Health Psychology (4)** Lecture, three hours. Preparation: undergraduate degree or training in psychology. Psychological and social factors involved in etiology of illness, treatment and course of illness, long-term care and adjustment of chronically ill or disabled, and practice of institutional healthcare and self-care. Letter grading.

**215B. Human Physiology in Social and Behavioral Science (4)** Lecture, three hours. Limited to graduate students. Designed to provide students with understanding of basic anatomy and activities of biological systems that relate psychological factors to health, and interconnections between these systems. Letter grading.

**216A. Psychology of Chronic Disease (4)** Seminar, three hours. Limited to graduate students. Major themes include conceptualization and operationalization of adjustment to chronic illness: theoretical framework for understanding determinants of adjustment to chronic illness and current research on those determinants, prevalence of psychological disorder in populations with chronic illness, evidence-based psychosocial interventions for individuals with chronic illness, and terminal illness and end-of-life care. Readings and discussion across several major chronic diseases (e.g., cardiovascular diseases, cancer, AIDS, rheumatic conditions, diabetes). Letter grading.

**216B. Psychoneuroimmunology (4)** Seminar, three hours. Limited to graduate students. Introduction to field of psychoneuroimmunology to help students develop conceptual and methodological skills necessary for interpreting research in this area. Letter grading.

**216C. Psychology of Women's Health (4)** Seminar, three hours. Limited to graduate students. Examination of theoretical and empirical advances in psychology of women's health. Socioenvironmental context of women's health, stress and depression in women, psychological aspects of gynecological health, major causes of morbidity and mortality for women, and women's health-related behaviors. Letter grading.

**216D. Psychology of Aging and Health (4)** Seminar, three hours. Limited to graduate students. Theories and methods in study of aging and adult development, age-related changes in biological systems, and psychosocial aspects of aging. Topics include physical and cognitive changes with age, mental and physical well-being in older adulthood, and socioemotional functioning changes with age. Letter grading.

**216E. Families, Emotions, and Health (4)** Seminar, three hours. Limited to graduate students. Discussion of theory and research on biological, emotional, social, and behavioral processes that link childhood family social environments to long-term mental and physical health. Letter grading.

**216F. Community Psychology (4)** Seminar, three hours. Limited to graduate students. Social problems focus, with discussion of both conceptual and methodological issues that arise when designing and evaluating community interventions. Issues related to conceptualization of social problems as opposed to problems of individuals, and presentation of multidimensional explanatory models and interventions for several social problems. Special attention to ethnic and socioeconomic health disparities and to methodological issues faced in conducting research on these issues. Letter grading.

**216G. Biology of Chronic Disease (4)** Seminar, three hours. Limited to graduate students. Examination of basic epidemiology and biology of major chronic diseases (e.g., cardiovascular disease, cancer, diabetes) and consideration of practical and logistical issues involved in studying chronic disease populations in behavioral and population research. S/U or letter grading.

**216H. Health Behavior Theory and Behavior Change (4)** Seminar, four hours. Overview of research and theory in health behavior and health behavior change. Identification of contribution of health behaviors to overall health,

construction of study methods that effectively measure major health behaviors, critical evaluation of health behavior change research, and generation of hypotheses and design research using main health behavior theories. S/U or letter grading.

**217. Variable Topics in Health Psychology (4)** Seminar, three hours. Topics vary by instructor within health psychology area of study and may include epigenetics, child health psychology, health behavior, and behavior change. May be repeated for credit. S/U or letter grading.

**218. Research Methods in Health Psychology (4)** Seminar, three hours. Designed for graduate psychology students. Basic foundation for health psychology graduate students to study various research designs and methods, measurement issues, responsible conduct of research, and related issues that are found in research in health psychology. S/U or letter grading.

**219. Health Psychology Lecture Series (2)** Lecture, one hour. Clinicians and researchers in health psychology from Los Angeles area present their research, programs, and/or clinical work as part of training program in health psychology. May be repeated for credit. S/U grading.

**220A. Social Psychology (4)** Lecture, three hours. Designed for graduate psychology students. Intensive consideration of concepts, theories, and major problems in social psychology.

**220B. Research Methods in Social Psychology (4)** Lecture, three hours. Prerequisite: graduate standing in psychology or consent of instructor. Research design and methodological issues in experimental and nonexperimental social research.

**222A. Interpersonal Relations (4)** Discussion, three hours. Requisite: course 220A. Critical review of theory and research on interpersonal relations, with emphasis on friendship, dating, and marriage.

**222C. Psychology of Intergroup Relations (4)** Lecture, three hours. Designed for graduate students. In-depth and comprehensive exposure to major theoretical and methodological issues within domain of intergroup relations research. Approaches not simply restricted to work within psychology but across social sciences in general, including anthropology, political science, and sociology. S/U or letter grading.

**222E. Foundations of Organizational Behavior (4)** (Same as Management-PhD M243.) Lecture, three hours. Designed for graduate students. Doctoral-level survey of classic and emerging theories and research in field of organizational behavior, with focus on micro-level topics related to individual and interpersonal processes within organizations. Exploration of how individual behaviors, cognitions, and perceptions are affected by organizational content, structure, and culture. S/U or letter grading.

**222F. Professional Issues in Psychology (4)** Seminar, three hours. Acquisition of skills essential for success in graduate school and academia more broadly, including transition to graduate school, writing, manuscript reviewing, grant writing, teaching and mentoring, academic job market, job negotiating, and giving job talks. Involves combination of guest speakers, lectures, discussions, readings, written exercises, and practical experience. S/U or letter grading.

**222G. Social Vision (4)** (Formerly numbered 222G.) (Same as Communication M234.) Seminar, three hours. Exploration of nascent field of social vision, with emphasis on how observers utilize visible cues in face and body to form impressions of other people and how these perceptions are moderated by existing knowledge structures and motivations. S/U or letter grading.

**222I. Intervention Science (4)** Seminar, three hours. Exploration of use of science as basis for intervention. Exploration of psychology of social problems, and potential for scientific insights to inform meaningful and lasting solutions to social problems. S/U or letter grading.

**225. Seminar: Critical Problems in Social Psychology (4)** Seminar, three hours. Requisites: courses 220A, 220B. May be repeated for credit with consent of instructor. S/U or letter grading.

**226A. Current Literature in Social Psychology (2)** Discussion, 90 minutes. Limited to first-year social psychology students. Recent and current research papers in social psychology presented by members of seminar and their significance and methodology discussed and criticized in depth. S/U grading.

**226B. Current Literature in Social Psychology (2)** Discussion, 90 minutes. Open to nonsocial psychology students with consent of instructor. Recent and current research papers in social psychology presented by members of seminar and their significance and methodology discussed and criticized in depth. S/U grading.

**226C. Current Literature in Social Psychology (2)** Discussion, 90 minutes. Open to nonsocial psychology students with consent of instructor. Recent and current research papers in social psychology presented by members of seminar and their significance and methodology discussed and criticized in depth. S/U grading.



**228A. Proseminar: Political Psychology (4)** (Same as History M236A and Political Science M261A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

**228B. Seminar: Political Psychology (4)** (Same as Political Science M261D.) Discussion, three hours. Requisite: course 220A or Political Science M261A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion. S/U or letter grading.

**228C. Critical Problems in Political Psychology (4)** (Same as Political Science M261E.) Discussion, three hours. S/U or letter grading.

**236B. Methods in Social and Affective Neuroscience (4)** Seminar, three hours. Designed for graduate students. Provides insight into how to conduct research in social and affective neuroscience. S/U or letter grading.

**238. Survey Research Techniques in Psychocultural Studies (4)** (Same as Psychiatry M238.) Seminar, three hours. Designed for graduate students. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

**239. Qualitative and Mixed Methods in Psychology, Education, and Social Sciences (4)** Seminar, three hours. Designed for graduate students. Substantive examples of qualitative and mixed-method research in culture and human development, both behavioral and neural. Examples illustrate variety of qualitative research techniques and diverse relations between qualitative and quantitative data useful for research. S/U or letter grading.

**240A. Language and Cognitive Development (4)** Lecture, three hours. Preparation: one undergraduate developmental psychology course in cognitive or language development. Designed for graduate students. Consideration of major topics and concepts, key theories, latest methods, and research findings in development of language and cognition. S/U or letter grading.

**240B. Social and Emotional Development (4)** Lecture, three hours. Preparation: one undergraduate developmental psychology course in social development or related topic. Designed for graduate students. Consideration of major topics and concepts, key theories, latest methods, and research findings in social and emotional development. S/U or letter grading.

**240C. Developmental Psychobiology (4)** Lecture, three hours. Limited to graduate students. Introduction to emerging field of developmental psychobiology, including cognitive and affective neuroscience. Consideration of major topics and concepts, key theories, latest methods, and research findings. S/U or letter grading.

**241. Current Developments in Developmental Psychology (1)** Discussion, 90 minutes. Designed for graduate developmental psychology students. Presentation of papers on current advances in developmental psychology and closely related areas by experts in the field. Emphasis on approaches to a problem, making it suitable to interweave presentations by graduate students. S/U grading.

**242A. Seminar: Developmental Psychology—Perceptual Development (4)** Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

**242B. Seminar: Developmental Psychology—Cognitive Development (4)** Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

**242F. Seminar: Developmental Psychology—Development of Language and Communication (4)** Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

**242G. Seminar: Developmental Psychology—Adolescent Development (4)** Seminar, four hours. Designed for graduate students. Review of recent research on physical, cognitive, social, and psychological development during second decade of life. Topics include pubertal development, changes in parent/adolescent relationships, role of peers, identity development, high-risk behaviors, stress and coping, and school adjustment. Letter grading.

**244. Critical Problems in Developmental Psychology (4)** Lecture, three hours. Requisites: courses 240A, 240B. Current problems; content varies depending on interest of class and instructor. May be repeated for credit with consent of instructor.

**245. Personality Development and Education (4)** (Same as Education M217C.) Lecture, four hours. Review of research and theory of critical content areas in personality development that bear on school performance: achievement motivation, self-concept, aggression, sex differences, empathy, and other social behaviors; review of status of emotional behavior in personality theory and development. S/U or letter grading.

**246. Developmental Affective Neuroscience (4)** Seminar, three hours. How emotional experiences and behaviors change over course of lifespan. What neuroscience and psychological science can reveal about these changes. Questions addressed using interdisciplinary, developmental affective neuroscience framework. S/U or letter grading.

**247. Culture, Brain, and Development (4)** (Same as Sociology M249.) Seminar, three hours. General introduction to interrelations of culture, brain, and development, including both social and cognitive development. Special attention to effects of social change on culture and human development. S/U or letter grading.

**248. Brain and Behavioral Development during Adolescence (4)** (Formerly numbered 248.) (Same as Neuroscience M248.) Seminar, three hours. Foundational and emerging work on adolescent brain and behavioral development. Topics include cognition, risk taking, emotion, identity, stress, relationships, and population diversity. Discussions of assigned readings and presentations by guest faculty and scientists. S/U or letter grading.

**249. Current Issues in Quantitative Psychology (1)** Seminar, 90 minutes. Designed for quantitative graduate students and minors. Research presentations and discussions of current topics in quantitative psychology. May be repeated for credit. S/U grading.

**250A. Advanced Psychological Statistics (4)** Review of fundamental concepts. Basic statistical techniques as applied to design and interpretation of experimental and observational research.

**250B. Advanced Psychological Statistics (4)** Advanced experimental design and planning of investigations.

**250C. Advanced Psychological Statistics (4)** Lecture, three hours; discussion, two hours. Requisite: course 250A. Limited to graduate students. Review of traditional topics in correlation and regression analyses, including model comparison strategies, evaluation of model assumptions, testing mediation and moderation hypotheses, working with categorical variables, general linear model, and logistic regression. Letter grading.

**251A. Research Methods (4)** Tutorial, to be arranged. Designed for graduate psychology students. Students design and conduct original research projects under supervision of instructor in charge. It is anticipated that many students will complete their project in two terms (normally three terms allowed). S/U grading.

**251B. Research Methods (4)** Tutorial, to be arranged. Designed for graduate psychology students. Students design and conduct original research projects under supervision of instructor in charge. It is anticipated that many students will complete their project in two terms (normally three terms allowed). S/U grading.

**251C. Research Methods (4)** Tutorial, to be arranged. Designed for graduate psychology students. Students design and conduct original research projects under supervision of instructor in charge. It is anticipated that many students will complete their project in two terms (normally three terms allowed). S/U or letter grading.

**253. Factor Analysis (4)** (Same as Education M231B.) Lecture, four hours. Requisites: Education 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis. S/U or letter grading.

**254B. Mediation, Moderation, and Conditional Process Analysis (4)** Lecture, three hours. Requisite: course 250C. Designed for students with previous experience with regression analysis. Application of linear and logistic regression to assess how (mediation) and when (moderation) effects occur; and combination of these to examine when certain processes occur (conditional process analysis). S/U or letter grading.

**254C. Bayesian Statistics (4)** Lecture, three hours. Requisite: course 256A. Introduction to Bayesian inferences, effective approaches to Bayesian modeling and computation, and Bayesian methods that can be used by applied researchers to solve real-life problems. Covers basic Bayesian inference. S/U or letter grading.

**255A. Quantitative Aspects of Assessment (4)** Lecture, four hours. Requisites: courses 250A, 250B. Introduction to issues concerning empirical measurement of abstract constructs using both classical and modern empirical techniques. Hands-on approach allows students to develop practical experience. In addition to discussion of issues concerning reliability and validity, topics include exposure to analytic approaches, including item response theory, multiple regression, principal components analysis, exploratory factor analysis, confirmatory factor analysis, path analysis, and structural equation modeling. S/U or letter grading.

**255B. Item Response Theory (4)** Lecture, three hours. Requisites: courses 250A, 250B. Introduction to item response theory (IRT) measurement models and their application to educational and psychological data. Coverage of major IRT models, including models for dichotomous and polytomous formats. S/U or letter grading.

**256A. Introduction to Multilevel Modeling (4)** Lecture, four hours. Requisite: course 250C. Basics of random coefficient models for analysis of data from (1) individuals nested within groups and (2) repeated observations of individuals (longitudinal growth models). Selected advanced topics, including three-level models, cross-classification, dyadic data, categorical outcomes, power, and assumption violation. S/U or letter grading.

**256B. Advanced Multilevel Modeling (4)** Lecture, four hours. Requisite: course 256A. Advanced topics in analysis of clustered and longitudinal data, including nonlinear models, multilevel mediation, nonhierarchical data structures, meta-analysis, modeling variance, and other topics of student interest. Readings in both quantitative and substantive multilevel modeling literature. S/U or letter grading.

**257. Multivariate Analysis with Latent Variables (4)** (Same as Political Science M208D and Statistics M242.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factor analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

**258. Special Problems in Psychological Statistics (4)** Lecture, three hours. Requisites: courses 250A, 250B. Special problems in psychological statistics and data analysis.

**259. Quantitative Methods in Cognitive Psychology (4)** Requisites: courses 250A, 250B. Number of nonstatistical mathematical methods and techniques commonly used in cognitive psychology. Topics include Markov chains, other stochastic processes, queueing theory, information theory, frequency analysis, etc.

**260A. Proseminar: Cognitive Psychology (1)** Presentation of research topics by students, faculty, and visiting scholars. May be repeated for credit. S/U grading.

**260B. Proseminar: Cognitive Psychology (1)** Presentation of research topics by students, faculty, and visiting scholars. May be repeated for credit. S/U grading.

**261. Perception (4)** Lecture, three hours. Concepts, theories, and research in study of perception. Considers the questions: Why do things look, sound, smell, taste, or feel as they do? What is the nature of perceptual systems? How do these systems process information?

**262. Human Learning and Memory (4)** Lecture, three hours. Contemporary theory and research in human verbal learning and memory; verbal and non-verbal learning and memory processes, structure and organization of short- and long-term memory. S/U or letter grading.

**263. Psycholinguistics (4)** Lecture, three hours. Language allows humans to transfer thoughts across minds. To elucidate mental structures and processes that underlie this feat, exploration of relationship between language and rest of human mind; and within language system itself, how mental labor is divided across distinct subcomponents. Critical examination of both classic and cutting-edge findings from experimental cognitive psychology, computational modeling, and neuroscience. Topics include relationship between linguistic structure and meaning; parallels between language and other cognitive domains (e.g., statistical learning, Bayesian inference, prediction, etc.); cognitive constraints on online language processing; influences of language on thought; language-thought dissociations; and efficient information coding. S/U or letter grading.

**264. Thinking (4)** Lecture, three hours. Contemporary theory and research in thinking, problem solving, inference, semantic memory, internal representation of knowledge, imagery, concepts. S/U or letter grading.

**265. Computational Methods for Neuroimaging (4)** Lecture, three hours. Requisites: courses 250A, 250B. Theory and practice of processing and analysis of functional MRI data. Topics include image registration, preprocessing and quality control, statistical modeling and inference, multivariate analysis, and machine learning methods. Letter grading.

**267. Neuroethics (4)** Seminar, three hours. Exploration of ethical implications of modern neuroscientific advances, including potential use in legal system for assessing eyewitness memory, truthfulness, culpability, and probability of future criminal behavior. Consideration of societal consequences of cognitively enhancing drugs, memory dampening techniques, and brain stimulation. S/U or letter grading.

**268F. Human-Computer Interaction (4)** Lecture, three hours. Limited to graduate students. Concepts, theories, and pragmatics of human-computer interaction. Topics include optimizing Web and product interfaces to enhance quality of user experience, with focus on applying principles of cognition, per-

ception, learning, and memory to create human-computer interactions that are consonant with user needs and capabilities. Course projects include creating and user testing actual Web-based application. S/U or letter grading.

**269. Seminar: Cognitive Psychology (4)** Seminar, three hours. Discussion of problems in cognitive psychology that encompass more than a single subfield of the area. May be repeated for credit.

**270A. Foundations of Clinical Psychology (4)** Lecture, five hours. Corequisite: course 271A. Designed for graduate clinical psychology students. Analysis of phenomenological, theoretical, and research issues regarding etiology and mediating mechanisms in neurotic, affective, schizophrenic spectrum, and other personality disturbances. Letter grading.

**270B. Foundations of Clinical Psychology (4)** Lecture, five hours. Corequisite: course 271B. Designed for graduate clinical psychology students. Principles and methods of psychological assessment and evaluation. Letter grading.

**270C. Foundations of Clinical Psychology (4)** Lecture, five hours. Corequisite: course 271C. Designed for graduate clinical psychology students. Principles and methods of psychological intervention in individuals, families, and community settings. Letter grading.

**271A. Clinical Psychological Methods (2)** Corequisites: courses 270A, 270B, 270C. Procedures in clinical psychology as applied in clinical and community settings. Supervised exposure to psychological attributes of psychopathology and procedures for psychological assessment, intervention, and research with clinical populations. Experience closely coordinated with content in courses 270A, 270B, 270C. S/U grading.

**271B. Clinical Psychological Methods (2)** Corequisites: courses 270A, 270B, 270C. Procedures in clinical psychology as applied in clinical and community settings. Supervised exposure to psychological attributes of psychopathology and procedures for psychological assessment, intervention, and research with clinical populations. Experience closely coordinated with content in courses 270A, 270B, 270C. S/U grading.

**271C. Clinical Psychological Methods (2)** Corequisites: courses 270A, 270B, 270C. Procedures in clinical psychology as applied in clinical and community settings. Supervised exposure to psychological attributes of psychopathology and procedures for psychological assessment, intervention, and research with clinical populations. Experience closely coordinated with content in courses 270A, 270B, 270C. S/U grading.

**271D. Clinical Research Laboratory (2)** Discussion, one hour; laboratory, one hour. Corequisites: courses 270A or 270B or 270C, and 271A or 271B or 271C. Designed for graduate clinical psychology students. Acquaints students with faculty research interests and involves them in their course 251 research at an early stage to insure completion. S/U grading.

**271E. Clinical Research Laboratory (2)** Prerequisites: course 271D, graduate standing in clinical psychology. Required of first-year clinical psychology students. Brief overview of research design issued in clinical psychology and practical issues in students' own research activities. S/U grading.

**271F. Clinical Research Laboratory (2)** Prerequisites: course 271D, graduate standing in clinical psychology. Required of first-year clinical psychology students. Discussions of students' particular research activities and issues, plus laboratories in computer analysis of statistical data. S/U grading.

**271G. Evidence-Based Intervention for Childhood Problems (4)** Fieldwork, five-day, 35-hour training period in Fall Quarter. Requisites: courses 271A, 271B, 271C. Designed for second-year graduate clinical psychology students. Training of students in application of (1) child treatment outcome literature, (2) clinical monitoring and feedback tools, and (3) common clinical strategies from evidence-based practices to prepare for assessment, monitoring, planning, and service delivery in child practicum. S/U grading.

**272E. Advanced Clinical Psychological Methods: Special Problems (4)** Seminar, three hours. Requisite or corequisite: course 401 or 451. May be taken independently for credit. Letter grading.

**272G. Advanced Clinical Psychological Methods: Marital Therapies (4)** Lecture, two hours; discussion, one hour; laboratory, one hour. Requisites: courses 270A, 270B, 270C, 271A, 271B, 271C. Examination of assessment and treatment approaches for relationship problems in couples. Presentation, discussion, and illustration of procedures derived from social-learning, psychodynamic, and systems theories, with relevant research findings. May be taken independently for credit. Letter grading.

**273A. Professional and Ethical Issues in Clinical Psychology (2)** Lecture, one hour; discussion, one hour. Designed for graduate clinical psychology students. Year-long course sequence covering variety of topics necessary for clinical psychologists in their clinical work, including legal and ethical issues, child abuse, suicide assessment, issues in empirically validated treatments, psychiatric consultation and psychoactive medications, working with diverse client populations, etc. Letter grading.

**273B. Professional and Ethical Issues in Clinical Psychology (2)** Lecture, one hour; discussion, one hour. Designed for graduate clinical psychology students. Year-long course sequence covering variety of topics necessary for clinical psychologists in their clinical work, including legal and ethical issues, child abuse, suicide assessment, issues in empirically validated treatments, psychiatric consultation and psychoactive medications, working with diverse client populations, etc. Letter grading.

**273C. Professional and Ethical Issues in Clinical Psychology (2)** Lecture, one hour; discussion, one hour. Designed for graduate clinical psychology students. Year-long course sequence covering variety of topics necessary for clinical psychologists in their clinical work, including legal and ethical issues, child abuse, suicide assessment, issues in empirically validated treatments, psychiatric consultation and psychoactive medications, working with diverse client populations, etc. Letter grading.

**274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations (4)** (Same as Health Policy and Management M274.) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behaviors and status of major racial/ethnic groups in U.S. Where appropriate, discussion of international issues as well. S/U or letter grading.

**276. Children with Learning and Related Behavioral Problems: School Policy and Practice (4)** Lecture, three hours. Designed for PhD students. Exploration of learning and related behavioral problems in broad perspective as basis for analyzing cause and intervention. Issues related to prevailing policies and practices and new directions for research, policy, practice, and training. S/U or letter grading.

**277A. Advanced Clinical Assessment (4)** Lecture, four hours; laboratory, three hours. Designed for graduate clinical psychology students. Projective techniques, clinical interpretation, case studies, psychological test battery, psychopathology, and application of assessment to problems in psychotherapy. Letter grading.

**277B. Advanced Clinical Assessment (4)** Lecture, four hours; laboratory, three hours. Designed for graduate clinical psychology students. Projective techniques, clinical interpretation, case studies, psychological test battery, psychopathology, and application of assessment to problems in psychotherapy. Letter grading.

**278. Functional Neuroimaging: Techniques and Applications (3)** (Same as Bioengineering M284, Neuroscience M285, Physics and Biology in Medicine M285, and Psychiatry M285.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

**280. Affective Disorders. (2, 4)** (Same as Psychiatry M234.) Seminar, two hours. General topics related to primary affective disorders (depression, manic depressive illness), including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment. Students enrolled for 4 units are assigned a more intensive reading list and required to make a presentation or prepare a research paper. S/U or letter grading.

**285. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2, 4)** (Same as Psychiatry M277.) Seminar, 90 minutes. Designed for graduate students. Cognitive/behavioral approaches to prevention and treatment of mental health problems in children. Examination of service delivery systems for treating troubled youth and discussion of issues with respect to current systems of care. Major problems include conduct disorders, attention deficit disorder, depression, anxiety, and learning disabilities. Letter grading.

**288A. Principles of Neuroimaging I (4)** (Same as Neuroscience M284A and Psychiatry M284A.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: Psychiatry 292. Course M288A is requisite to M288B. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

**288B. Principles of Neuroimaging II (4)** (Same as Neuroscience M284B and Psychiatry M284B.) Lecture, four and one half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requisite: course M288A. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-

ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

**289A. Current Issues in Clinical Psychology (1)** Seminar, two hours. Designed for first-year graduate clinical psychology students. Presentation of research and applied topics relevant to clinical psychology. In Progress grading (credit to be given only on completion of courses 289B and 289C).

**289B. Current Issues in Clinical Psychology (1)** Seminar, two hours. Designed for first-year graduate clinical psychology students. Presentation of research and applied topics relevant to clinical psychology. In Progress grading (credit to be given only on completion of course 289C).

**289C. Current Issues in Clinical Psychology (1)** Seminar, two hours. Designed for first-year graduate clinical psychology students. Presentation of research and applied topics relevant to clinical psychology. S/U grading.

**290. History and Systems of Psychology (2)** Seminar, two hours. Requisites: courses 251A, 251B, 251C. Rich and detailed examination of history of full scope of psychology as scientific discipline, with particular emphasis on cognitive, social/personality, developmental, and biological aspects of discipline. Broad treatment of how various emphases within broader field have evolved. S/U or letter grading.

**291. Trauma and Health (4)** Seminar, three hours. Trauma is common—vast majority of individuals experience traumatic event during their lifetime. Although many individuals are resilient after these experiences with respect to their emotional health, sequelae of these events can be long-lasting. Post-traumatic stress disorder (PTSD) is often considered quintessential psychiatric disorder related to trauma, but impact of trauma can affect wide range of mental and physical health outcomes across lifespan. Trauma can be conceptualized as transdiagnostic risk factor for multitude of psychological and physiological health processes that may operate beyond recognized diagnostic boundaries. Study takes in-depth dive into empirical literature on trauma. S/U or letter grading.

**294. Seminar: Neural and Behavioral Endocrinology (2)** (Same as Neurobiology M255 and Physiological Science M255.) Lecture, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

**295. Psychology of Diversity (4)** Seminar, three hours. Introduction to research and theory on group differences and psychology of diversity. Topics include social identity, intergroup relations, development across lifespan and across social and cultural contexts, and group disparities in health and mental health. Letter grading.

**296A. Research Topics in Psychology (1)** Research group meeting, one hour. Limited to graduate students. Discussion of current literature, new ideas, methodological issues, and preliminary findings. Research presentations and opportunities for feedback on current and proposed research activity to encourage, support, and facilitate student research expertise. Assigned readings included. S/U grading.

**C296B. Research Group Seminars: Practicum (1)** Seminar, one hour. Designed for graduate students who are part of research group that meets with undergraduate students. Discussion of research methods and current literature in field or of research of faculty members or students. Concurrently scheduled with course C194D. S/U grading.

**297. Methods in Developmental Cognitive Neuroscience (4)** (Formerly numbered 297.) (Same as Neuroscience M297.) Seminar, three hours. Survey of methods and tools used to address developmental cognitive neuroscience questions. S/U or letter grading.

**298. Special Problems in Psychology. (1 to 4)** Seminar, one to three hours. Content depends on interests of particular instructor. May be repeated for credit. S/U or letter grading.

**401. Fieldwork in Clinical Psychology. (1 to 12)** Fieldwork, to be arranged. Requisites: courses 271A, 271B, 271C. Students on practicum assignments are required to register for this course each term (except by consent of clinical program committee). Letter grading.

**402. Clinical Research Practicum (2)** Fieldwork, two hours. Faculty and graduate students who share interests discuss current literature, new ideas, methodological issues, and preliminary findings. Meetings include research presentations and opportunities for feedback on current and proposed research activity to encourage, support, and facilitate student research expertise. Assigned reading included. S/U grading.

**403. Special Topics Study Course. (1 to 4)** Discussion, one to four hours. Under faculty supervision, group of students meets each week for quarter in self-led study group to pursue specific topic of their choice that is not covered in other department courses. S/U grading.

**410A. Clinical Teaching and Supervision (4)** Clinic, four hours. Preparation: completion of PhD comprehensive examinations, advancement to candidacy or preparation for dissertation research actively under way. Study and practice of knowledge, concepts, and theories on teaching and supervision of applied clinical psychology. Letter grading.

**410B. Clinical Teaching and Supervision (4)** Clinic, four hours. Preparation: completion of PhD comprehensive examinations, advancement to candidacy or preparation for dissertation research actively under way. Study and practice of knowledge, concepts, and theories on teaching and supervision of applied clinical psychology. Letter grading.

**410C. Clinical Teaching and Supervision (4)** Clinic, four hours. Preparation: completion of PhD comprehensive examinations, advancement to candidacy or preparation for dissertation research actively under way. Study and practice of knowledge, concepts, and theories on teaching and supervision of applied clinical psychology. Letter grading.

**410D. Clinical Assessment Supervision (2)** Clinic, two hours; other, one hour. Designed for third-year graduate clinical psychology students. Study and practice of knowledge, concepts, and theories on teaching and supervision of psychological assessment. Letter grading.

**410E. Clinical Assessment Supervision (2)** Clinic, two hours; other, one hour. Designed for third-year graduate clinical psychology students. Study and practice of knowledge, concepts, and theories on teaching and supervision of psychological assessment. Letter grading.

**410F. Clinical Assessment Supervision (2)** Clinic, two hours; other, one hour. Designed for third-year graduate clinical psychology students. Study and practice of knowledge, concepts, and theories on teaching and supervision of psychological assessment. Letter grading.

**421. Research in Social Psychology (2)** Discussion, two hours; reading and group work, four to six hours. Forum for faculty and graduate students pursuing research on a common topic to share research ideas, make research presentations, and obtain feedback on study designs, procedures, and results to foster collaborative investigations in common research areas. S/U grading.

**430. Quantitative Psychology Practicum (4)** Practicum, two hours. Requisites: courses 250A, 250B, 250C, 255A, 256A, M257, 258. Hands-on statistical consultation training for graduate students majoring in quantitative psychology. Weekly meeting with faculty supervisor, consultation with researchers in Psychology Department, and preparation for and following-up on consultation meetings. S/U grading.

**451. Internship in Clinical Psychology. (8 to 12)** Fieldwork, to be arranged. Preparation: successful completion of departmental qualifying examinations. Enforced requisite: course 401. Limited to advanced UCLA clinical psychology graduate students. May be repeated for credit. S/U grading.

**495. Presentation of Psychological Materials (4)** Seminar, to be arranged. Supervised practicum in undergraduate teaching. Students serve as discussion section leaders in selected undergraduate courses. S/U grading.

**495A. Teaching Assistant Training Seminar: Presentation of Psychological Materials I (1)** Seminar, 90 minutes. Supervised practicum in undergraduate teaching. Focus on discussion and implementation of evidence-based teaching practices. Topics include facilitating active learning, presenting material, providing constructive feedback, and teaching diverse students. Students serve as teaching assistants in course 10. S/U grading.

**495B. Teaching Assistant Training Seminar: Presentation of Psychological Materials II (1)** Seminar, one hour. Requisite: course 495A. Supervised practicum in undergraduate teaching. Advanced training in use of evidence-based teaching practices. Topics include designing course materials, setting pedagogical goals, and developing teaching statements. Students serve as teaching assistants in various courses. S/U grading.

**596. Directed Individual Research and Study in Psychology. (1 to 12)** Tutorial, to be arranged. One 596 course is required during second year of graduate study, and one 596 or 599 course is required during each succeeding year of graduate study. (Terminal MA candidates are exempt from this requirement.) S/U grading.

**597. Individual Studies (1 to 12)** Tutorial, to be arranged. Designed primarily as preparation for qualifying examinations. May be required by some area committees as requisite for taking examinations. S/U grading.

**599. Research for PhD Dissertation (1 to 12)** Tutorial, to be arranged. Preparation: successful completion of qualifying examinations. One 599 course is required during each year following completion of qualifying examinations. S/U grading.

# Public Affairs Schoolwide Programs

## Public Affairs Courses

### Lower Division

**10. Social Problems and Social Change (5)** Lecture, three hours; discussion, one hour. Introduction to social scientific approaches to study of social problems and their solutions. Using selected contemporary social problems as cases, and drawing on variety of sources (such as scholarly readings, video clips, and guest speakers), exploration of how social problems and their solutions come to be defined, roles that economic, political, educational, and cultural institutions play in perpetuating or solving social problems, and how individuals, social advocates, and communities can lead or impede social change. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Power, Politics, and Policy Change (5)** Lecture, three hours; discussion, one hour. Introduction to key institutions of government, politics, and policy in U.S., covering their history, contemporary forms, and internal dynamics. Includes various scales and branches of government as well as institutions that exercise power and influence in public decision making and social action, such as corporations, unions, media, social movements, and civil society. Letter grading.

**30. Comparative Analysis of Wealth, Policy, and Power (5)** Lecture, three hours; discussion, one hour. Exploration of strategic interactions that give rise to social problems around world, what can be done to address them, and how different polities have tried (and sometimes failed) to mount effective response. Applications include climate change, antivaccination movement, protest and repression, war and formation of states, corruption, and human and drug trafficking. Letter grading.

**40. Microeconomics for Public Affairs (5)** Lecture, three hours; discussion, one hour. Introduction to principles of microeconomics with focus on social and policy problems. Study of decisions by firms and individuals, and implications for allocation of resources. Application of economic models to public issues such as social safety net, minimum wage, education, inequality, and poverty. Letter grading.

**50. Foundations and Debates in Public Thought (5)** Lecture, three hours; discussion, one hour. Introduction of core concepts of democracy and equality and challenges to implementation posed by race, class, and gender inequality. Review of standards by which political systems can be judged to be democratic and identification of obstacles to their mutual implementation. Focus on inequality, its historical causes and modern consequences. Letter grading.

**60. Using Data to Learn about Society: Introduction to Empirical Research and Statistics (5)** Lecture, three hours; discussion, two hours. Not open for credit to students with credit for Economics 41, Political Science 6, Statistics 10, 12, 13, or 15. Introduction to statistics through examination of topics of public interest. Familiarization with research design principles and hands-on data analysis using statistical software. Students learn how to find and organize quantitative data; summarize, display, and interpret data; draw inferences from samples (including understanding margins of error, standard errors, and confidence intervals); test hypotheses about associations between two variables (including tests of proportion, t-tests, chi-squared, correlation); and communicate findings to lay audience. Letter grading.

**70. Information, Evidence, and Persuasion (4)** Lecture, three hours; discussion, one hour. Examination of sources and varieties of knowledge produced in social sciences. Evaluation of types of evidence, arguments, and persuasion on social problems and public issues. Examination of public life of evidence and arguments by different actors in social policy-making, persuasion, and propaganda process. Letter grading.

**80. How Social Environments Shape Human Development (4)** Lecture, three hours; discussion, one hour. Overview of major theoretical, conceptual, and empirical traditions in study of human development. Exploration of how diverse cultural, social, socioeconomic, and historical contexts interact with biological, cognitive, and psychological processes to affect individuals during key developmental periods (such as early childhood, childhood, adolescence, early adulthood, and late adulthood). Topics may include historical changes in

families, schools, neighborhoods, and workplace; economic conditions of families, schools, and neighborhoods; enduring effects of childhood on adult well-being; and impact of ascribed characteristics such as gender, race, and nationality on individuals' environments, pathways, and outcomes. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**95. Introduction to Community or Corporate Internships in Public Affairs. (2, 4)** Tutorial, two hours; fieldwork, eight hours. Limited to freshmen/sophomores. Entry-level internship in supervised setting in corporate, governmental, or nonprofit/community organization setting related to public affairs. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. May be repeated for credit. May not be used toward Public Affairs major capstone requirement; consult with undergraduate adviser. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M109. Introduction to Cities and Planning (4)** (Same as Urban Planning M120.) Lecture, three hours; discussion, one hour. Survey of urban history and evolution in U.S., urban social theory, current growth trends, system of cities, urban economy and economic restructuring, traditional and alternative location theories, urban transportation, and residential location and segregation. Letter grading.

**110. Urban Revolution: Space and Society in Global Context (4)** Lecture, three hours; discussion, one hour. Examination of potentialities and challenges of 21st-century urban revolution in global context. Introduction of theoretical frameworks and conceptual methods used by urban studies and planning to study cities and urban transformations, and historical and contemporary analysis of urbanization to learn about key urban processes such as agglomeration, segregation, gentrification, and suburbanization. Students learn about institutions and policies governing transportation and housing, and forms of community organizing and civil society that seek to redress urban inequalities. Introduction to key theories of space and utopian visions of urbanism. Letter grading.

**111. Microeconomics: Market Failures and Inequality (4)** Lecture, three hours; discussion, one hour. Requisites: courses 40 (or Economics 1 or 11 or equivalent introductory economics course), 60 (or Political Science 6 or Statistics 10 or equivalent introductory statistics course). Introduction to economic theory for policy analysis. Broad focus on evaluating rationale for government intervention in economy, in particular to address market failures and issues of economic inequality. Major emphasis on market failures in context of environmental sustainability, and economic inequality arising from markets for human capital, health, housing, and labor. Students are expected to have working knowledge of basic statistical and economic concepts. Letter grading.

**112. Social Movements (4)** Lecture, three hours; discussion, one hour. Introduction to theories, real-life examples, and applied skills for understanding and contributing to social movements. Examination of how and why social movements emerge; how and why people join, lead, stay, or drop out of movements; and strategies and tactics by which social movements enact change. Draws upon wide range of social movements inside and outside of U.S. Letter grading.

**113. Policy Analysis: Approaches to Addressing Social Problems (4)** Lecture, three hours; discussion, one hour. Introduction to applied policy analysis designed to train students in logic of public policy analysis, introduce them to general skills required to do policy analysis, and to prepare them in persuasive presentation of their work. Development of skills fundamental to effective policy analysis and argumentation. Letter grading.

**114. People, Organizations, and Systems (4)** Lecture, three hours. Theoretical approaches to human service organizations to explore social ecology of helping relationships and problem-solving processes in which helpers and clients in organizations engage. Examination of organizational structures/function. Study of interplay between individual clients, organizations, larger systems, and social and cultural backdrop. Letter grading.

**115. Using Quantitative Methods to Understand Social Problems and their Potential Solutions (5)** Lecture, three hours; discussion, two hours. Requisite: course 60 or equivalent introductory statistics course. Course in R preferred. Introduction to multivariate quantitative research models used to answer questions in social science. Students gain practical and intuitive understanding of multivariate regression, program evaluation, and research methods, and apply knowledge by analyzing real world data. Focus on practical analytic tools using statistical software. Letter grading.

**116. Using Qualitative Methods to Understand Social Problems and Their Potential Solutions (5)** Lecture, three hours; discussion, two hours. Introduction to qualitative research methods with focus on ethnographic observations, interviewing, and focus groups. Students practice conducting variety of qualitative methods. Letter grading.

**117B. Network Science Using R (4)** (Same as Public Policy CM177.) Lecture, three hours. No prior knowledge of R required. Designed for juniors and seniors. Network analysis offers framework for understanding how relationships between people, places, and institutions affect public policy outcomes. For example, why individuals decide to protest or vote, amount of education they pursue, or effect of human interference in ecosystem can all be considered using network analysis. Weekly introduction of concept from network analysis, followed by working through it using popular statistical programming language R. Letter grading.

**117C. Community-Engaged Research Methods (4)** (Same as Chicana/o and Central American Studies M129 and Labor Studies M129.) Lecture, four hours. Students are trained in designing, drafting, piloting, and administering new survey focused on transitions to adulthood. Written in collaboration with labor and community partners serving Latinx, Asian Americans and Pacific Islanders, Black, and Indigenous youth and low-wage workers, this survey gathers data on workforce development, labor rights, education, health, mental health, and civic engagement of young people residing in Black, Indigenous, and people of color communities. Students are exposed to historical development of racial statistics, role of racial statistics in contemporary life, and critical quantitative science. Includes testing questions on racial identity and attitudes, gender identity, workforce development, labor rights, healing and wellness, and other topics determined by labor and community partners. P/NP or letter grading.

**117DX. Data Analysis for Educational Equity and Improvement (4)** (Formerly numbered M117D.) (Same as Public Policy CM126XP.) Lecture, three hours. Requisite: course 60. Exploration of challenge of making data useful for decision-making from cleaning data and deciding which analyses to conduct; to conducting those analyses carefully, thoughtfully, and in reproducible way; to displaying results, interpreting them, and communicating them clearly. Focus on challenge of making survey data useful to educators so that they can use those data to reflect on school and district policies and practices and, ultimately, use information to improve students' school experiences. Letter grading.

**120. Urban Poverty and Public Policy (4)** Lecture, three hours. Exploration of how neighborhoods characterized by concentrated poverty affect urban residents. Evaluation of relative efficacy of various public policies that aim to improve life chances of urban poor. Use of explicitly political lens, evaluating roles that elite institutions, mass behavior, class and race-based power disparities, and public opinion play in development and implementation of urban policy. Letter grading.

**121. Race, Class, Gender, and Spatial Inequality (4)** Lecture, three hours. Introduction to economic and sociological approaches to analyzing dimensions, causes, and consequences of inequality in society. Introduction to public policy concepts and tools for analyzing key urban, labor, and social policies that may help to alleviate inequality in society. Letter grading.

**122. Participatory Action Research on Youth Organizing for Racial Justice (4)** (Same as African American Studies M129B, American Indian Studies M129, Asian American Studies M128, and Chicana/o and Central American Studies M129B.) Lecture, four hours. Students are trained to conduct participatory action research on grassroots youth organizing across California. Students gain historical and theoretical background on multi-racial and inclusive organizing. Students learn how to collect and analyze data pertaining to pressing organizing issues. Study and critical analysis of youth organizing strategies. Weekly training modules on data collection and grassroots organizing strategies that prepare students for internships in grassroots youth organizing groups serving Asian American, Black, Latinx, and Native American communities. P/NP or letter grading.

**123. History and Public Policy (4)** Seminar, three hours. Consideration of the deep history of racialized displacement in Los Angeles to generate new lines of critique and possibility into the contemporary struggle over displacement. Study engages in a case-study approach to explore the histories of race, gender, sovereignty, conquest, property, public policy, commons, class, and economies of shelter. Letter grading.

**124. Child Welfare Policy in America (4)** (Same as Social Welfare M151.) Lecture, three hours. Limited to juniors/seniors. Examination of public child welfare system in the U.S. Review of social policies and programs that impact children. History of social policies and programs for children, including discussion of orphanages, foster care, and adoptions. Transformation of public child welfare system into child protection system. Impact of welfare reform on child policies and programs in the U.S. Major programs designed to provide safety net for disadvantaged children, including welfare, food stamps, child care, child support, and children's allowance programs. Review of research and analysis in this area. Overview of social policies and programs that impact children in the U.S. Examination of comparative policies in other countries. P/NP or letter grading.

**125. Creating Safe and Welcoming Schools (4)** (Formerly numbered 125.) (Same as Education M177.) Lecture, two hours; discussion, one hour. Examination of historical context and causes of school violence, theories, and diverse perceptions of school climate and safety. Special emphasis on impact of school climate on oppressed groups and how social contexts such as poverty and how neighborhood resources influence school safety. Letter grading.

**128. Practical Applications of Research on Emerging Adults (4)** Lecture, three hours. Focus on practical applications of research on critical transition period in human development—emerging adulthood—with particular emphasis on experiences of college students. Letter grading.

**129XP. Intergenerational Communication across Lifespan (4)** (Same as Gerontology M142XP and Social Welfare M142XP.) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psychological, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

**130. Biomedical, Social, and Policy Frontiers in Human Aging (5)** (Same as Gerontology M108 and Social Welfare M108.) Lecture, four hours. Limited to juniors/seniors. Course of human aging charted in ways that are based on variety of recent research frontiers. Use of conceptual frameworks to increase relevance of aging to students' lives and enhance their critical thinking—biopsychosocial approach that is based on recognition that aging is inherently interdisciplinary phenomenon, and life course perspective that is distinguished by analytical framework it provides for understanding interplay between human lives and changing social structures, and allows students to understand how events, successes, and losses at one stage of life can have important effects later in life. Focus on individuals as they age within one particular sociohistorical context. Letter grading.

**131. Diversity in Aging: Roles of Gender and Ethnicity (4)** (Same as Chicana/o and Central American Studies M106B, Gender Studies M104C, Gerontology M104C, and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

**134. Politics of U.S. Health Policy (4)** Lecture, three hours. Students gain firm understanding of process of health policy making in U.S. primarily through lens of debate over national health care reform culminating in passage of Patient Protection and Affordable Care Act (ACA) of 2010 and efforts of opponents to repeal or overturn it. Letter grading.

**135. Firearm Violence Prevention Policy (4)** Lecture, three hours. Examination of range of topics connected to contemporary debates about firearm violence in U.S. Exploration of causes and consequences of firearm violence in different contexts. Letter grading.

**136. Cannabis Policy and Society (4)** Lecture, three hours. Designed to enable students to formulate responsible opinions on cannabis legalization, industry, regulation, and taxation; to defend them with good analysis; and to understand logic behind opinions that may differ from their own. Letter grading.

**137. Gangs, Criminal Justice, and Mass Incarceration (4)** Lecture, three hours. Exploration of criminal justice policies that surround gangs, sentencing, prisons, incarceration, and rehabilitation. Students develop understanding of how to communicate knowledge and research regarding criminal justice system, gangs, and mass incarceration. Letter grading.

**140. Race, Rights, and Citizenship: Encounters with Bureaucracies (4)** Lecture, three hours. Examination of role of bureaucracies in emergence of, persistence of, and experience of social inequality. Exploration of dilemmas that bureaucrats face as they do their jobs, and experiences of residents who interact with bureaucrats. Consideration of how peoples' experience of bureaucracies are associated with socioeconomic standing, and reflection on how experiences with bureaucracies convey messages about race, citizenship, and belonging. Letter grading.

**142. Latino Social Policy (4)** (Same as Chicana/o and Central American Studies CM177.) Lecture, three hours; discussion, one hour (when scheduled). Examination of social welfare of Latinos (Chicanos, Puerto Ricans, and Cubans) in U.S. through assessment and critical analysis of social policy issues affecting them. Survey of social, economic, cultural, and political circumstances affecting ability of Latinos to access public benefits and human services. Letter grading.

**145. California Policy Issues (4)** Lecture, three hours. Application of policy analysis to California issues. Guest lectures from practitioners and academics along with readings and videos. Written reports and oral presentations required. Letter grading.

**148. U.S. Housing Policy and Geography of Opportunity (4)** Lecture, three hours. Exploration of contemporary levels of racial inequality through lens of U.S. housing policy. Study includes historical overview of federal policies; evaluation of ways by which living in racially segregated, high-poverty neighborhoods constrain opportunity and social mobility; exploration of most prevalent affordable housing policies; and evaluation of their respective program designs and outcomes. Letter grading.

**149. International Housing Policy (4)** Lecture, three hours; discussion, one hour. Study of housing policies in diverse range of countries, contrasting those with U.S. housing policy. Examination of policies in different contexts to better understand how institutional, economic, legal, and cultural contexts shape housing policies and housing outcomes. Letter grading.

**153. Parking and City (4)** (Same as Urban Planning CM151.) Lecture, three hours. Requisite: course 40 or Economics 1 or 11. Parking is misunderstood link between transportation and land use. Transportation engineers typically assume that free parking simply is there at end of most trips, while urban planners treat parking as transportation issue that engineers must study. No profession is intellectually responsible for parking, and everyone seems to assume that someone else is doing hard thinking. Mistakes in planning for parking help to explain why planning for transportation and land use has in many ways gone slowly, subtly, incrementally wrong. Study of theory and practice of planning for parking and examination of how planning for parking in U.S. has become planning for free parking. Exploration of new ways to improve planning for parking, transportation, and land use. Letter grading.

**154. Green Transportation (4)** Lecture, three hours. Introduction to transportation planning and policy from environmental perspective. How to encourage alternatives to private car and reduce air pollution and greenhouse gas emissions. Planning for autonomous vehicles, bicycle, parking, pedestrian, and transit. Environmental justice in transportation. Letter grading.

**157. Built Environment and Health (4)** (Same as Urban Planning CM157.) Lecture, three hours. Exploration of important linkages between urban-built environment and public-health outcomes using ecological, urban planning, and community-based lenses through theory and series of case studies. Knowledge of these linkages is used to propose ecological solutions to issues at nexus of built environment and public health. Letter grading.

**158XP. Trees in City (4)** Lecture, three hours. Introduction of foundational urban ecological concepts using case of urban trees. Includes wide range of disciplines as well as practitioner and community organizing perspectives to understand social and ecological implications of urban vegetation. Students partner with environmental non-profit located in Los Angeles. Letter grading.

**159. Politics of Water (4)** (Same as Urban Planning M168.) Lecture, three hours; discussion, one hour. Access to safe and sustainable water provision is major challenge for governments. Examination of political, economic, and social dimensions of water provision in Asia, Africa, Latin America, and U.S. Key issues include water and state building, market reforms and globalization, social mobilization, and citizen demand making strategies, role of crisis in citizen claims making. Letter grading.

**160. Urban Sustainability (4)** (Same as Urban Planning M161.) Lecture, three hours. In 21st century, majority of Earth's population now lives in urban areas and virtually no part of globe remains untouched by human influence. Cities constitute crucibles of most pressing social and environmental challenges but are also potential centers of innovation for addressing those challenges. Examination of theory and practice from geography and related fields to understand many articulations of urban sustainability and how it might be achieved. Letter grading.

**161. Environmental Justice through Multiple Lenses (4)** (Same as Environment M167 and Urban Planning M167.) Lecture, three hours. Examination of intersection between race, economic class, and environment in U.S., with focus on issues related to social justice. Because environmental inequality is highly complex phenomenon, multidisciplinary and multipopulation approach taken, using alternative ways of understanding, interpreting, and taking action. P/NP or letter grading.

**162. U.S. Environmental Politics (4)** Lecture, three hours. Examination of political forces that contribute to environmental policy outcomes in U.S. Exploration of how political identity, distributive conflict, economic mobilization, representation gaps, and inequality in exposure to environmental risks and benefits shape individual attitudes and collective decision making about environmental issues, including climate change. Letter grading.

**164. Science, Technology, and Public Policy (4)** (Same as Electrical and Computer Engineering CM182 and Public Policy CM182.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Letter grading.

**165. Advanced Technology: Public Policy, Regulation, and Law (4)** (Same as Public Policy CM175.) Lecture, three hours. Examination of cutting-edge public policy and regulatory issues implicated by advanced technologies such as artificial intelligence, drones, autonomous vehicles, blockchain/Bitcoin, etc. Exploration of whether and how such new technologies should be regulated. Exploration of how policymakers should balance need to promote investment and innovation against need to protect public against potential misuse and abuse of these new technologies. Exploration of many issues raised by these technologies such as privacy, national security, network neutrality, intellectual property rights, and more. Letter grading.

**170. Civil Society, Nonprofit Organizations, and Philanthropy: Comparative Perspectives (4)** Seminar, three hours. Increased importance of nonprofits, rise of philanthropy, and (re-)discovery of civil society have moved this set of institutions closer to center of policy agendas. Introduction of conceptual and historical background. Examination of organizational performance and impact. Exploration of key policy issues. Comparative perspective between U.S. and other countries and fields. Letter grading.

**172. Development and Its Governance (4)** Lecture, three hours. Exploration of how economics, institutions, and politics interact to constrain and shape development strategies—emphasizing tension between normative visions of good economic policy and good governance and practical challenge of identifying practical ways of fostering change in specific settings. Focus on challenges of development in low- and middle-income settings, with exploration of governance challenges within U.S. Letter grading.

**174. Cultural Policy and Cultural Diplomacy: Soft Power, Creative Economy, Innovation, and Arts (4)** Lecture, three hours. Culture is one of most complex concepts in social sciences. Review of cultural policies at international, national, and local levels. Exploration of culture as system of meaning and identity, as well as culture as art and creative expression. Examination of use of culture in international relations and cultural diplomacy. Letter grading.

**175. Communications and Conflict in Public Affairs (4)** Lecture, four hours. Interactive course that prepares students for successful work with collaborators, policymakers, and public. Students gain interpersonal skills, cultural competency; learn effective communication, conflict resolution, and negotiate their interests successfully; learn to engage constituencies and build community around shared goals. P/NP or letter grading.

**176XP. Making Films about Food (5)** (Formerly numbered M176SL.) (Same as Community Engagement and Social Change M176XP and Food Studies M176XP) Lecture, three hours. Introduction to documentary video production and distribution. Students work on assignments in pairs and small groups to create 8- to 10-minute video about one of several Los Angeles partner organizations that advocate for healthy, local, sustainable food. Consideration, through video production, of challenges posed by existing farming, ranching, and distribution methods, and strategies these groups are pursuing to create more sustainable food pathways. Students look at social media communication strategies to help think through intervention in face of historically entrenched industrial food production and regulations that remain favorable to mass-produced, processed food items. P/NP or letter grading.

**179A. Social Movements in Theory and Practice (4)** (Same as Public Policy M179.) Lecture, three hours. Social movement is group of people pressuring for political or social change over long periods of time. Study focuses on how mass movements form, when and where they are likely to form, what types of tactics they choose, how those tactics affect their success, and role new technologies play. Weekly focus on one specific topic, such as nonviolence or social media, with historic and more recent movements used as case studies. Letter grading.



**180. Lawyers, Law, and Public Affairs (4)** Lecture, three hours. Interplay between public affairs, public policy, and law represents one of most significant and fundamental aspects of American democracy. Students gain tools necessary for understanding how law shapes public policy, and how public policy shapes law. Covers key skills for understanding legal reasoning and shows how those skills operate in various substantive legal policy areas. Letter grading.

**187AX. Experiential Learning Capstone (5)** (Formerly numbered 187A.) Lecture, two hours; discussion, one hour. Course 187AX is requisite to 187BX, which is requisite to 187CX. Limited to and required for senior Public Affairs majors. Students apply public affairs course concepts and methods to internship experience; refine understanding of concepts and methods based on internship experience; gain new knowledge about specific topics related to their internship; and develop new skills needed to complete capstone project. Letter grading.

**187BX. Experiential Learning Capstone (5)** (Formerly numbered 187B.) Lecture, two hours; discussion, one hour. Requisite: course 187AX. Limited to and required for senior Public Affairs majors. Students apply public affairs course concepts and methods to internship experience; refine understanding of concepts and methods based on internship experience; gain new knowledge about specific topics related to their internship; and develop new skills needed to complete capstone project. Letter grading.

**187CX. Experiential Learning Capstone (5)** (Formerly numbered 187C.) Lecture, two hours; discussion, one hour. Requisite: course 187BX. Limited to and required for senior Public Affairs majors. Students apply public affairs course concepts and methods to internship experience; refine understanding of concepts and methods based on internship experience; gain new knowledge about specific topics related to their internship; and develop new skills needed to complete capstone project. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Seminar: Public Affairs (4)** Seminar, three hours; outside study, nine hours. Emerging issues in public affairs. May be repeated for credit. Letter grading.

**191DC. CAPP Washington, DC, Research Seminars (8)** (Same as Communication M191DC, History M191DC, Political Science M191DC, and Sociology M191DC.) Seminar, three hours. Limited to CAPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC—based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**191P. Variable Topics Seminar: Public Policy (4)** (Same as Public Policy CM191B.) Seminar, three hours; discussion, one hour (when scheduled); outside study, eight hours. Emerging issues in public policy. May be repeated for credit. P/NP or letter grading.

**195. Community or Corporate Internships in Public Affairs (2, 4)** Tutorial, to be arranged; fieldwork, six to 12 hours. Limited to juniors/seniors. Internship in supervised setting in corporate, governmental, or nonprofit/community organization setting related to Public Affairs. Students meet with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. May be repeated for credit. May not be used toward Public Affairs major capstone requirement; consult with undergraduate adviser. P/NP or letter grading.

**195CE. Community or Corporate Internships in Public Affairs (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit settings coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student instructor, and write final research paper. May be repeated for credit with consent of Center for Community Engagement. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

**195DC. Quarter in Washington, DC, Internships (4)** (Same as Community Engagement and Social Change M195DC, History M195DC, Political Science M195DC, and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior Quarter in Washington program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

**196. Research Apprenticeship in Public Affairs (2 to 4)** Tutorial, three hours per week per unit. Limited to juniors/seniors. Research apprenticeship for upper-division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

**198A. Honors Research in Public Affairs (4)** Tutorial, to be arranged. Limited to senior Public Affairs majors. Requisites: courses 115, 116. Course 198A is requisite to 198B, which is requisite to 198C. Development and completion of research project and thesis under direct supervision of faculty member. Individual contract required. Letter grading.

**198B. Honors Research in Public Affairs (4)** Tutorial, to be arranged. Limited to senior Public Affairs majors. Requisites: courses 115, 116, 198A. Development and completion of research project and thesis under direct supervision of faculty member. Individual contract required. Letter grading.

**198C. Honors Research in Public Affairs (4)** Tutorial, to be arranged. Limited to senior Public Affairs majors. Requisites: courses 115, 116, 198B. Development and completion of research project and thesis under direct supervision of faculty member. Individual contract required. Letter grading.

**199. Directed Research or Senior Project in Public Affairs (2 to 6)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

# Public Health Schoolwide Programs

## Public Health Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**50A. Introduction to Public Health I (5)** Lecture, four hours; discussion, one hour. Systematic exploration of history, philosophy, development, and scope of public health in U.S. and globally. Emphasis on scientific, social, and legal basis for public health practice, including strategies for advancing individual, community, and environmental public health. Survey of core public health functions and essential services with special focus on population health, health equity, environmental justice, and financing of health services. Letter grading.

**50B. Introduction to Public Health II (5)** Lecture, four hours; discussion, one hour. Requisite: course 50A. Exploration of contemporary public health issues and challenges in U.S. and elsewhere with goal to acquaint students with current public health functions, issues, policies, practices, and current strategies for advancing people's health. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M106. Health in Chicano/Latino Population (4)** (Same as Chicana/o and Central American Studies CM106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Letter grading.

**C150. Fundamentals of Public Health (4)** (Formerly numbered 150.) Lecture, four hours; discussion, one hour. Limited to nonmajors. Not open for credit to students with credit for course 50A. Exploration of foundations of public health by examining public health challenges at local, national, and global levels, and current strategies for advancing population health. Analysis of current public health issues and modern public health policies and practices. May be concurrently scheduled with course C201. Letter grading.

**185A. Public Health Capstone I (4)** Seminar, three hours; discussion, one hour. Limited to Public Health majors. Enrollment by consent of school. Culminating experience for students to apply acquired content knowledge and skills to public health problem or issue. Students bring accumulated public health knowledge, skills, and methodological tools to individual or group project theme that is approved by instructor. Required weekly written assignments, participation in review and discussion of other students' work, and development of scope of work that outlines what is to be completed in course 185B. In Progress grading (credit to be given only on completion of course 185B).

**185B. Public Health Capstone II (4)** Seminar, three hours; discussion, one hour. Enforced requisite: course 185A. Students continue independent, or group work related on theme developed in course 185A. Students share in-progress work and continue to receive guidance from instructor and peer feedback. Students participate in school-sponsored poster session by presenting project outcomes to school and campus community. Letter grading.

**188. Special Courses in Public Health (4)** Lecture, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic and instructor change. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty

mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**191. Variable Topics Research Seminar in Public Health (5)** Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic and instructor change. Letter grading.

**195. Community or Corporate Internship in Public Health (4)** Tutorial, one hour; fieldwork, eight to 10 hours. Limited to Public Health majors and minors. Internship in corporate, governmental, or nonprofit setting under the supervision of faculty sponsor. Students expected to complete reading and written assignments, meet with faculty sponsor, and write final paper. Individual contract with supervising faculty member required. May be repeated for credit with consent of program. Letter grading.

**195CE. Community and Corporate Internship in Public Health (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to Public Health majors and minors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Engagement. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty of record and graduate student instructor construct series of reading assignments that examine issues related to working in field of public health. Individual contract with supervising faculty member required. May be repeated with consent of program. Letter grading.

**196. Research Apprenticeship in Public Health (4)** Tutorial, one hour. Limited to junior/senior Public Health majors or minors. Entry-level research apprenticeship under guidance of faculty mentor. Collaboration with faculty mentor on research related to public health. May be repeated for credit. Individual contract required. Letter grading.

**197. Individual Studies in Public Health (4)** Tutorial, four hours. Limited to junior/senior Public Health majors or minors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. Letter grading.

**198. Honors Research in Public Health (4)** Tutorial, one hour. Limited to Public Health majors or minors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Public Health (4)** Tutorial, one hour. Limited to Public Health majors or minors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

### Graduate

**200A. Foundations in Public Health (8)** Lecture, seven hours; discussion, one hour. Introduction to foundational concepts, definitions, historical milestones, and methods related to five core disciplines of public health. Using traditional lecture presentations, active-learning case-based classroom discussions, lab sessions, and community projects, students learn essential knowledge about public health as well as skills needed to be effective public health professional, including oral and written presentation skills for relevant audiences, data analytic and presentation skills, and multidisciplinary team-building skills working with students from throughout school of public health. Letter grading.

**200B. Foundations in Public Health (8)** Lecture, seven hours; discussion, one hour. Introduction to foundational concepts, definitions, historical milestones, and methods related to five core disciplines of public health. Using traditional lecture presentations, active-learning case-based classroom discussions, lab sessions, and community projects, students learn essential knowledge about public health as well as skills needed to be effective public health professional, including oral and written presentation skills for relevant audiences, data analytic and presentation skills, and multidisciplinary team-building skills working with students from throughout school of public health. Letter grading.

**C201. Fundamentals of Public Health (4)** Lecture, four hours; discussion, one hour. Limited to school of public health graduate students. Exploration of foundations of public health by examining public health challenges at local, national, and global levels, and current strategies for advancing population health. Analysis of current public health issues and modern public health policies and practices. May be concurrently scheduled with course C150. Letter grading.

**273. Responsible Conduct of Research in Global Health (2)** (Same as Epidemiology M273.) Lecture, two hours. Requisite: Community Health Sciences 200. Introduction to fundamental principles of public health ethics, current ethical procedures, guidelines, and requirements, and ethical issues facing public health professionals working in developing countries. History of public health issues, unique ethical issues of research in developing countries, analysis of ethical implications of informed consent, responsibility to study community, mechanisms of study approval, role of funders, and role and responsibilities of review boards. S/U or letter grading.

**299. Strategies for Success for Doctoral Students (2)** Seminar, two hours. Interactive seminar, with focus on research process, tips for success in academia, and important tools for leadership designed for all doctoral students in School of Public Health. S/U grading.

**401. Public Health as Profession (4)** Lecture, four hours. Limited to Fielding School of Public Health graduate students. Introduction to interprofessional collaboration, team building, leadership, communication, cultural humility, and implicit bias, while supporting professional development and growth of Master of Public Health (MPH) students. Focus on development of strong collaborative skills with opportunities to practice benefiting students entering public health workforce. MPH students participate in systems-based health-care course with dental, medical, and nursing students. Letter grading.

**475. Pedagogy: Essential Skills and Innovative Strategies (2)** Seminar, two hours. Designed for School of Public Health doctoral students. Interactive seminar with focus on developing teaching materials for courses and acquisition of skills and tools that help students to become successful and innovative instructors. Active learning methodologies and competencies-based approach to instruction. S/U or letter grading.

**490. Public Speaking Mastery for Public Health Professional (2)** Lecture, two hours. Lectures with in-class exercises, or in-class presentations followed by coaching feedback. Topics focus on developing range of communication skills necessary for students to become confident and effective public speakers. Master's and doctoral students in programs housed in School of Public Health who are interested in learning how to prepare and deliver impactful, compelling presentations with confidence and professionalism are encouraged to enroll. S/U or letter grading.

**495. Preparation for Teaching Public Health (2)** Seminar, two hours. Designed for graduate students. Prepares individuals who will serve as teaching assistants for courses in Fielding School of Public Health. Study of methodologies in teaching public health, including implementing active learning strategies, effectively communicating goals for student learning, developing course materials that are consistent with expectations for student learning, creating inclusive teaching environment, and dealing with difficult situations. S/U grading.

# Public Policy

## Public Policy Courses

### Lower Division

**10A. Introduction to Policy Analysis (5)** Lecture, three hours; workshops and outside study, three hours. Overview of contemporary policy analysis to develop analytical skills with applications in business, economics, government, law, and medicine. P/NP or letter grading.

**10B. California Policy Issues (4)** Lecture, three hours; outside study, nine hours. Application of policy analysis to California issues. Guest lectures from practitioners and academics along with readings and videos. Student written reports and oral presentations required. Letter grading.

**10C. Public Policy for Crime, Cannabis, and Other Drugs (5)** Lecture, three hours; outside study, twelve hours. Application of policy analysis, including critical analysis, problem solving, and substantive policy research, to develop knowledge and understanding about drug and crime policy, with focus on cannabis. Guest lectures by instructors and guest academics and practitioners, with readings from academic literature and policy reports. P/NP or letter grading.

**10D. Public Policy and Urban Homelessness (5)** Lecture, three hours; outside study, film review, and field/volunteer work, nine hours. Application of policy analysis to issues and solutions concerning homelessness. Guest lectures from local policymakers. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**105. Leadership in Public Interest (4)** Lecture, three hours. Examination of prevailing models, theories, and practices of leadership in public settings and application of them through case studies, films, and situational articles. Participation in group projects and discussions designed to improve understanding of role of leadership in mobilizing people groups to do difficult work. Introduction to literature and theory on leadership, examination of leadership and group dynamics, and challenge of leadership in times of stress and change. Letter grading.

**113. Politics of U.S. Health Policy (4)** Lecture, three hours. Every modern nation faces similar health system challenges, such as promoting health and longevity, providing effective treatments, balancing benefits and burdens of medical technology, and controlling healthcare costs that grow faster than national income. U.S. seems uniquely disadvantaged with lower life expectancy, problematic quality of medical services, lack of insurance for millions, and highest costs in world, hampering families, businesses, and government. What political dynamics produced this result and influence possibility and direction of ongoing policy change? Examination of meaning of health and healthcare; international experience; current status, organization, and financing of U.S. healthcare system; and factors that affect national health policymaking, including comprehensive healthcare reform: framing of problems, role of public opinion, influence of interest groups, composition and organization of Congress, and opportunities for and applications of presidential leadership. P/NP or letter grading.

**C115. Environmental and Resource Economics and Policy (4)** Lecture, three hours. Requisites: Economics 11, 143. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Concurrently scheduled with course CM250. Letter grading.

**120. Race, Inequality, and Public Policy (4)** (Same as African American Studies M120.) Lecture, three hours; discussion, one hour. Background in economics, sociology, or urban studies preferred but not required. Survey course to examine major debates and current controversies concerning public policy responses to social problems in urban America. Letter grading.

**CM126XP. Data Analysis for Educational Equity and Improvement (4)** (Formerly numbered CM126.) (Same as Public Affairs M117DX.) Lecture, three hours. Requisite: Public Affairs 60. Exploration of challenge of making data useful for decision-making from cleaning data and deciding which analyses to conduct; to conducting those analyses carefully, thoughtfully, and in reproducible way; to displaying results, interpreting them, and communicating them clearly. Focus on challenge of making survey data useful to educators so that they can use those data to reflect on school and district policies and practices and, ultimately, use information to improve students' school experiences. Concurrently scheduled with course C226. Letter grading.

**127. Understanding Public Issue Life Cycle (4)** (Same as Political Science M142D.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended preparation: Political Science 10, 40, and one course from Economics 1, 2, 5, 11, or 101. Examination of how public issue life cycle is shaped by (1) economic and political incentives of various actors—business, news media, mass public, organized interests, Congress, the president, regulatory agencies, and courts and (2) ideology, cognitive biases, and ethical reasoning. P/NP or letter grading.

**C135. Crime and Public Policy (4)** Seminar, three hours. Crime is one of most costly social problems faced by societies across world. Examination of crime trends, criminogenic factors that influence them, and policy initiatives that influence them, largely in U.S. context. Criminal justice policy community is increasingly focused on best and evidence-based practice, and often derives implication and policy recommendation from existing empirical research. Focus on basic empirical and theoretical research on determinants of criminal offending and effectiveness, and effects of policy interventions meant to address criminal offending. Concurrently scheduled with course C235. Letter grading.

**CM171. International Development (4)** (Same as Economics M112A.) Lecture, three hours. Requisite: Economics 102 or 111. Why are some countries rich, while other countries are poor? What can policymakers do to reduce poverty? Discussion of current research on these questions. Study of both methodologies used to answer questions in development economics, like natural experiments and randomized control trials, as well as relationship between development and institutions, education, growth, culture, and gender. Reading intensive, seminar-style course. Students are expected to read academic articles in economics and actively participate in discussions. Students also learn how to use data to evaluate policies. Concurrently scheduled with course C271. P/NP or letter grading.

**CM175. Advanced Technology: Public Policy, Regulation, and Law (4)** (Same as Public Affairs M165.) Lecture, three hours. Examination of cutting-edge public policy and regulatory issues implicated by advanced technologies such as artificial intelligence, drones, autonomous vehicles, blockchain/Bitcoin, etc. Exploration of whether and how such new technologies should be regulated. Exploration of how policymakers should balance need to promote investment and innovation against need to protect public against potential misuse and abuse of these new technologies. Exploration of many issues raised by these technologies such as privacy, national security, network neutrality, intellectual property rights, and more. Concurrently scheduled with course C275. Letter grading.

**CM177. Network Science Using R (4)** (Same as Public Affairs M117B.) Lecture, three hours. No prior knowledge of R required. Designed for juniors and seniors. Network analysis offers framework for understanding how relationships between people, places, and institutions affect public policy outcomes. For example, why individuals decide to protest or vote, amount of education they pursue, or effect of human interference in ecosystem can all be considered using network analysis. Weekly introduction of concept from network analysis, followed by working through it using popular statistical programming language R. Concurrently scheduled with course C277. Letter grading.

**CM179. Social Movements in Theory and Practice (4)** (Same as Public Affairs M179A.) Lecture, three hours. Social movement is group of people pressuring for political or social change over long periods of time. Study focuses on how mass movements form, when and where they are likely to form, what types of tactics they choose, how those tactics affect their success, and role new

technologies play. Weekly focus on one specific topic, such as nonviolence or social media, with historic and more recent movements used as case studies. Concurrently scheduled with course C279. Letter grading.

**CM182. Science, Technology, and Public Policy (4)** (Same as Electrical and Computer Engineering CM182 and Public Affairs M164.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM282. Letter grading.

**C183. Science Policy and Expertise (4)** Lecture, three hours. Introduction to social analysis of science and expertise by considering three overlapping themes: social conditions that affect production of scientific knowledge, debates about expertise and democracy in technical and policy decision-making, and current controversies about expertise and autonomy of science (e.g., conflicts of interest in funding of biomedical research and recent charges of politicization of science). Concurrently scheduled with course C283. Letter grading.

**187. Research Seminar: Public Policy (4)** Seminar, three hours; outside study, nine hours. Requisite: course 10A or Public Affairs 10. Limited to and required of seniors in Public Affairs minor. Production of research project that examines in depth one particular policy issue in its social context, including political pressures involved and problems of implementation. Emphasis on skills of data acquisition and analysis, conceptualization, and written analysis and presentation. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics Research Seminars: Public Policy (4)** Seminar, three hours; outside study, nine hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

**CM191B. Variable Topics Seminar: Public Policy (4)** (Same as Public Affairs M191P.) Seminar, three hours; discussion, one hour (when scheduled); outside study, eight hours. Emerging issues in public policy. May be repeated for credit. Concurrently scheduled with course C291B. P/NP or letter grading.

**191C. Variable Topics Research Seminars: Public Policy (2)** Seminar, two hours; outside study, four hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

**CM191G. Special Topics in Global Studies and Public Policy (4)** (Same as Global Studies M161.) Seminar, three hours. Examination of one or more topics related to public policy and global studies. May be repeated for credit with topic change. Concurrently scheduled with course C291G. P/NP or letter grading.

**197. Individual Studies in Public Policy (2, 4)** Tutorial, four hours. Preparation: 3.0 grade-point average. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**201. Principles of Microeconomic Theory I (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. First course in two-term sequence (see course 204) to prepare students for economic analysis of public policy, with review of economic principles and basic microeconomic theory and policy applications. Consumer theory and demand, producer theory and supply, equilibrium of product and factor markets. Letter grading.

**201A. Microeconomic Analysis for Public Health and Policy (4)** (Same as Health Policy M203A.) Lecture, four hours. Requisite: Mathematics 3A or 3B or 31A. Course M201A is requisite to M204A. Basic concepts of microeconomics, with emphasis on their application to actual situations and their use in problem solving and focus on theory of choice. Extensive use of differential calculus. Letter grading.

**202. Politics and Policymaking (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Designed to provide background necessary to develop strategies for shaping policy through different institutions such as legislatures, bureaucracies, courts, and media. Consideration of models of decision-making and delegation and their application to real-world cases. Letter grading.

**203. Statistical Methods of Policy Analysis I (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. First course in two-term sequence (see course 208). Review of statistical principles useful to policy research and analysis. Topics include descriptive statistics, expectations, univariate distribution, probability, covariance and correlations, statistical independence, random sampling, estimators, unbiasedness and efficiency, statistical inference, confidence intervals, and hypothesis testing. Letter grading.

**204. Principles of Microeconomic Theory II (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 201. Second course in two-term sequence (see course 201) covering both theory and policy applications. Topics include monopoly, factor markets, general equilibrium, welfare economics, externalities, public goods, uncertainty, and intertemporal optimization. Letter grading.

**204A. Microeconomic Analysis for Public Health and Policy (4)** (Same as Health Policy M203B.) Lecture, four hours. Requisites: course M201A, and one course from Mathematics 3A, 3B, or 31A. Basic concepts of microeconomics, with emphasis on their application to actual situations and their use in problem solving and focus on theories of firms and markets. Extensive use of differential calculus. Letter grading.

**205. Qualitative Methods for Policy Analysis (4)** Lecture, three hours. Introduction to use of qualitative methods in policy analysis. Students gain exposure to techniques of interviewing, participant observation/ethnography, comparative-case studies, and archival research. Consideration of research design matters including questions and situations for which qualitative methods are ideally suited, and how to use qualitative data when they are best available. Focus maintained on practical dimensions of qualitative methods in policy research including sampling and inferences, instrument design, directed inductive analysis, data gathering and coding under time pressure, and professional ethics. Letter grading.

**206. Political Economy of Policy Adoption and Implementation (4)** Lecture, three hours; outside study, nine hours. Analysis of how policy is formed, adopted, and implemented. How policies are formulated, by whom, how policy agendas are set, how to define relationships between politicians, bureaucrats, lobbyists, and media experts. Letter grading.

**208. Statistical Methods of Policy Analysis II (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 203. Second core course in statistics and quantitative methods for MPP degree. Quantitative studies of public policy, covering regression analysis and its application to public policy questions. Letter grading.

**209. Management in the 21st Century (4)** Lecture, three hours; outside study, nine hours. Focus on practical management skills to prepare students for workplace. Examination of design, management, and leadership of teams in

organizational settings, decision-making strategies in face of challenges, and negotiation as invaluable skill. Examples from public and private sectors, as well as experiential learning through exercises, cases, and simulations. Letter grading.

**210. Methods of Policy Analysis (4)** Lecture, three hours; discussion, one hour (when scheduled); outside study, nine hours. Preparatory course that precedes three-term 298A, 298B, 298C sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. Letter grading.

**212. Child Welfare Policy (4)** (Same as Social Welfare M290J.) Lecture, three hours. Development of social policy as it affects families and children from different cultural backgrounds and as it is given form in public child welfare system. Examination of development of infrastructure to support needs of children and families. S/U or letter grading.

**213. Mental Health Policy (4)** (Same as Social Welfare M290K.) Lecture, three hours. Examination of evolution of social policy and services for mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of mentally ill and services they are provided. S/U or letter grading.

**214. Poverty, Poor, and Welfare Reform (4)** (Same as Social Welfare M290L and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

**215. Health Policy (4)** (Same as Social Welfare M290M.) Lecture, three hours. Introduction to contemporary issues in healthcare financing and delivery, providing historical perspective on emergence of these issues. Examination of major public programs and their relationship to issues of access and cost. S/U or letter grading.

**216. Public Policy for Children and Youth (4)** (Same as Social Welfare M290N.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

**217. Graduate Seminar in Environmental Economics and Policy (4)** (Same as Environmental Health Sciences M217.) Seminar, four hours. Preparation: undergraduate-level statistics, basic undergraduate microeconomics. Introduction to applied scholarship in environmental economics and policy. Enables students to become more proficient consumers and producers of social science research that explores questions of environmental policy and sustainability broadly construed. Topics include health and economic impacts of climate change, adaptation to climate change, efficient and equitable design of environmental policies (e.g., cap and trade, carbon taxes). Development of detailed empirical research proposal and short presentation. Letter grading.

**218. Research Design and Methods for Social Policy (4)** (Same as Urban Planning M204.) Lecture, three hours; outside study, nine hours. Limited to graduate students. How to become more sophisticated consumers and producers of qualitative and quantitative policy research. In first half of course, formal principles of research design; in second half, various data collection methods, including ethnography, interviewing, and survey design. Letter grading.

**220. Transportation and Land Use: Urban Form (4)** (Same as Urban Planning M250.) Lecture, three hours. Historical evolution of urban form and transportation systems, intrametropolitan location theory, recent trends in urban form, spatial mismatch hypothesis, jobs/housing balance, transportation in strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

**221. Travel Behavior Analysis (4)** (Same as Civil Engineering M287 and Urban Planning M253.) Lecture, three hours. Requisites: courses 201 or M201A, and 203, or Urban Planning 207 and 220B. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation, trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

**222. Transportation Economics, Finance, and Policy (4)** (Same as Urban Planning M256.) Lecture, three hours. Overview of transportation finance and economics; concepts of efficiency and equity in transportation finance; historical evolution of highway and transit finance; current issues in highway finance; private participation in road finance, toll roads, road costs and cost allocation, truck charges, congestion pricing; current issues in transit finance; transit fare and subsidy policies, contracting and privatization of transit services. Letter grading.

**223. Transportation and Climate Change (4)** (Same as Urban Planning M258.) Lecture, three hours. How to reduce greenhouse gas emissions from transportation. Critical analysis of policies to improve fuel economy, promote electric vehicles, and reduce vehicle travel. History and legal frameworks of environmental regulation. Analytical methods to quantify carbon emissions and estimate emission reductions. Focus on climate change, but consideration of other environmental consequences of transportation, from air pollution to stormwater runoff. Letter grading.

**224A. Introduction to Geographic Information Systems (4)** Lecture, three hours. Preparation: one graduate-level statistics course, familiarity with one packaged statistics program. Principles of Geographic Information Systems (GIS) and applied techniques of using spatial data for mapping and analysis. Topics include data quality, data manipulation, spatial analysis, and information systems. Use of mapping and spatial analysis to address planning problem. Letter grading.

**224B. Advanced Geographic Information Systems (4)** Studio, three hours. Requisite: course M224A. Advanced topics in geographic information systems (GIS) utilizing geoprocessing tools in ArcMap, map design, and spatial analysis. Letter grading.

**225. Education Policy and Education Inequality (4)** Seminar, three hours; outside study, nine hours. Preparation: statistics background through multiple regression analysis. Limited to graduate students. Examination of policies that may reduce socioeconomic and ethnic disparities in educational success. Topics include international and national comparisons of educational outcomes, private and public school choice, school accountability policies, interventions to improve school or teacher quality, parenting and preschool interventions, and supplemental educational services. Letter grading.

**C226. Data Analysis for Educational Equity and Improvement (4)** Lecture, three hours. Requisite: Public Affairs 60. Exploration of challenge of making data useful for decision-making from cleaning data and deciding which analyses to conduct; to conducting those analyses carefully, thoughtfully, and in reproducible way; to displaying results, interpreting them, and communicating them clearly. Focus on challenge of making survey data useful to educators so that they can use those data to reflect on school and district policies and practices and, ultimately, use information to improve students' school experiences. Concurrently scheduled with course CM126XP. Letter grading.

**227. Politics, Power, and Philanthropy (4)** (Same as Social Welfare M290S and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

**228. Nonprofit Organizations and Philanthropy: Management and Policy (4)** (Same as Social Welfare M241E and Urban Planning M288.) Lecture, three hours; outside study, nine hours. Increased importance of nonprofit organizations—as service providers, vehicles of humanitarian assistance, policy advocates, social entrepreneurs, innovators, and as instruments of government reform—have moved this set of institutions closer to center of social welfare, urban planning and public policy agendas. Introduction of conceptual background, examination of theories and aspects of organizational behavior, and management models and policy frameworks. Lectures, seminar-type discussion, in-class presentations, and guest presentations. Letter grading.

**228B. Global Public Affairs: Governing in Interconnected World (4)** (Same as Social Welfare M215 and Urban Planning M231.) Lecture, three hours; outside work, nine hours. Conceptually, focus on interplay between three major institutional complexes of modern, globalizing societies and organizations that operate within them: state, market, and civil society. Study moves between abstract theory and concrete examples, offers sense of where these institutions and organizations have come from, and helps chart their present trajectories. From perspective of governance, assessment of roles and configurations of institutions and organizations to address today's challenges. S/U or letter grading.

**229. Law and Management of Nonprofit Organizations (2)** (Same as Management M225.) Lecture, three hours. Introduction to important legal, financial, and management issues confronting nonprofit organizations. Topics include how to start nonprofit tax-exempt organizations, qualifying and maintaining tax-exempt status under IRC Code Section 501(c)(3), corporate governance, political and legislative activity restrictions, and strategic planning, fundraising, nonprofit accounting, and employment law. S/U or letter grading.

**230. Immigration Policy and Activism (4)** (Same as Chicana/o and Central American Studies M278.) Seminar, three hours. Highlighting roles of race, gender, sexuality, and citizenship status, exploration of how immigrant rights activists organize for legalization and against detention, deportation, and border militarization. Letter grading.

**231. Politics of Hood (4)** (Same as Chicana/o and Central American Studies M206.) Seminar, three hours. Limited to graduate students. Investigation of root causes and consequences of critical problems impacting people who live in hood including poverty, incarceration, gentrification, welfare, public education, health disparities, and segregation, among other political issues. S/U or letter grading.

**232. Chicana/o and Intersectional Marxisms (4)** (Same as Chicana/o and Central American Studies M257.) Seminar, three hours. Examination of relationship between Marxism, intersectionality, and early-Chicana/o Marxist influenced intellectual thought. Focus on key debates and texts on connections between race, gender, sexuality, and capitalism. Review of key articles and books examining Chicana/o identity, labor, family, sexuality, and activism through Marxist theoretical framework. S/U or letter grading.

**233. Immigration Policy and Politics (4)** Seminar, three hours. Introduction to politics of immigration. Examination of development and dynamics of immigration policymaking in historical and contemporary perspective. Focus on issues including creation of illegal immigration, border militarization, detention, deportation, public opinion, political behavior, and assimilation. Letter grading.

**234A. Voting Rights Policy and Law I (4)** (Formerly numbered M296A.) Clinic, three hours. Collaborative course taught from perspective of social science research, civil rights, and voting rights. Exposes students to voting rights act theory, case law, history, research, and implementation. Faculty guest experts from across campus provide their perspective on how to study, research, and document various aspects related to voting rights. Includes factors such as history of discrimination against minority group in areas of employment, education, housing, and political representation. Students learn and implement in-depth study of methodology and statistical approach to document presence or absence of vote dilution or vote denial in different jurisdictions. Discussion of history and legal principles of federal Voting Rights Act and California Voting Rights Act led by leading voting rights attorney. May be repeated for credit. S/U or letter grading.

**234B. Voting Rights Policy and Law II (4)** (Formerly numbered M296B.) Clinic, three hours. Requisite: course 234A. Collaborative course taught from perspective of social science research, civil rights, and voting rights. Exposes students to voting rights act theory, case law, history, research, and implementation. Faculty guest experts from across campus provide their perspective on how to study, research, and document various aspects related to voting rights. Includes factors such as history of discrimination against minority group in areas of employment, education, housing, and political representation. Focus on practical aspects of voting rights lawsuit. Students learn in greater detail legal theory relevant to bringing successful voting rights challenge, and how to assemble and present social science evidence. Students read case law on prior Voting Rights Act decisions, review accompanying expert reports, and work in teams on aspects of lawsuit. S/U or letter grading.

**234C. Voting Rights Policy and Law III (4)** (Formerly numbered M296C.) Clinic, three hours. Requisites: courses 234A, 234B. Collaborative course taught from perspective of social science research, civil rights, and voting rights. Exposes students to voting rights act theory, case law, history, research, and implementation. Faculty guest experts from across campus provide their perspective on how to study, research, and document various aspects related to voting rights. Includes factors such as history of discrimination against minority group in areas of employment, education, housing, and political representation. Students continue work on all aspects of voting rights cases including preparation of expert research reports, legal argumentation and filings, depositions, and other case-related matters. S/U or letter grading.

**C235. Crime and Public Policy (4)** Seminar, three hours. Crime is one of most costly social problems faced by societies across world. Examination of crime trends, criminogenic factors that influence them, and policy initiatives that influence them, largely in U.S. context. Criminal justice policy community is increasingly focused on best and evidence-based practice, and often derives implication and policy recommendation from existing empirical research. Focus on basic empirical and theoretical research on determinants of criminal offending and effectiveness, and effects of policy interventions meant to address criminal offending. Concurrently scheduled with course C135. Letter grading.

**236. Criminal Justice Policy on Trial (4)** Seminar, three hours. Survey of several criminal justice policy areas including labor market effects of incarceration, bias in policing and sentencing, cash bail, and drug policy. Introduction to recent research. Students engage in discussions about current policy, and develop and present policy proposal. Letter grading.

**240. Theories of Regional Economic Development I (4)** (Same as Geography M230A and Urban Planning M236A.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other

forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

**241. Introduction to Regional Planning (4)** (Same as Urban Planning M230.) Lecture, three hours. Critical and historical survey of evolution of regional planning theory and practice, with particular emphasis on relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, territorial community, and social production of space. Letter grading.

**243. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits (4)** (Same as Social Welfare M290U and Urban Planning M275.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

**243B. Housing Policy and Planning (4)** (Same as Urban Planning M296.) Lecture, three hours. Study of housing policy and planning focused partly on California given rapid changes occurring in state, with consideration of experiences from other states and countries and to what extent they are relevant here. Specific topics likely include policies such as social housing, rent control, and housing finance, issues of household formation, housing supply, housing submarkets, and gentrification, as well as planning processes related to housing production and Affirmatively Furthering Fair Housing. Letter grading.

**244. Shared Mobility Policy and Planning (4)** (Same as Urban Planning M255.) Lecture, three hours. Introduction to planning, analysis, and management of shared mobility systems, with particular focus on public transit. Overview of shared mobility policy and planning context; introduction to transportation planning and project evaluation processes; high-speed rail and airports and aviation; public transit policy and planning, including performance evaluation and route planning; taxis and ADA paratransit, ride-hailing, car-, bike-, and scooter-share; implications of vehicle automation for shared mobility in the years ahead. Letter grading.

**247B. Comparative Perspective on States, Markets and Civil Society (4)** (Same as Social Welfare M290X and Urban Planning M210B.) Lecture, two and one half hours. Governance is about solving and managing societal problems, such as climate change, poverty, migration, security, mobility, pollution, or trade relations. Contemporary governance is complex set of laws, rules, and regulations involving rights and responsibilities of three institutional complexes of modern societies (state, market, and civil society), interests that guide them, and legitimacy and resources they command. Actors often reach across systemic, jurisdictional, and national boundaries; their relationships can be cooperative, neutral, or fraught with conflict, and governance outcomes can vary significantly. These dynamics involve fundamental challenges and, consequently, require significant governance readiness. Lectures, debates, in-class exercises, and student presentations. Exploration of several issues in more detail, e.g., types of state capacities, democracy, crisis management, governance innovation, and specific policy fields such as infrastructure or global finance. S/U or letter grading.

**CM250. Environmental and Resource Economics and Policy (4)** (Same as Urban Planning M267.) Lecture, three hours. Prerequisites: courses 204 and 208, or Urban Planning 207 and 220B. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Concurrently scheduled with course C115. Letter grading.

**251. Public Budgeting and Finance (4)** Lecture, three hours; outside study, nine hours. Limited to graduate students. How financial resources are allocated through budget processes at federal, state, and local levels of government in the U.S. and how each level of government finances its operations and capital investment programs, with particular attention to California. Students are organized into small groups to facilitate review of assigned readings and to report key information to class. Based on assigned readings, development of budget strategy matrix outlining best practices budget strategies to use in various resources availability contexts. Letter grading.

**252. Today's Los Angeles and Institutions and Leaders that Make It Work (4)** Seminar, four hours. Focus on institutions and leaders that make up Los Angeles region and influence its policies and quality of life. Institutions studied include political, governmental, business, economic, media, labor, citizen advocacy, educational, cultural, sports and entertainment, and philanthropic sectors; and how they combine to affect region in which we live. Consideration of how leadership and institutional structures in each of these sectors

advance or constrain progress; how Los Angeles addresses issues such as transportation, real estate development, housing, homelessness, poverty, and health care, among others; and how it can better do so. Letter grading.

**253. Lesbian, Gay, Bisexual, and Transgender Law and Public Policy Research (4)** (Same as Law M675.) Lecture, three hours. Exploration of relevance of public policy research to lesbian, gay, bisexual, and transgender (LGBT) legal issues. Topics include LGBT identity and demographics, legal recognition of same-sex couples, parenting, workplace discrimination, transgender rights, intersections of race and sexuality, LGBT youth and safe schools, LGBT health disparities, and Don't Ask, Don't Tell. Discussion of social science research that has informed various areas of LGBT law. Themes include doctrinal and other reasons why research has become more central to LGBT legal advancements in past decade, different types of public policy research, limitations of current data and research on LGBT issues, difficulties in translating social science research into evidence in courtroom, impact that dominant LGBT rights frame of equality has on social science research, challenges in conducting objective research, and effective presentation of social science research before legislators, judges, juries, media, and other audiences. S/U or letter grading.

**261. Aging Policy, Elderly and Families (4)** (Same as Social Welfare M290P.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of theoretical models and concepts of policy process and application to aging policy. Analysis of decision-making processes that affect social policies. Description of historical development of contemporary policy. Exploration of current proposals and issues. Letter grading.

**265. Pharmaceutical Policy (4)** (Same as Health Policy and Management M205.) Lecture, three hours. Policy issues pertaining to pharmaceutical sector. Topics include determinants of expenditures on drugs, price setting in industry, health insurance coverage for pharmaceuticals, and research and development process. Letter grading.

**266. Politics of Health Policy (4)** (Same as Community Health Sciences M287 and Health Policy and Management M287.) Lecture, three hours; discussion, one hour. Examination of politics of health policy process through analysis of case studies such as environmental protection, pandemic preparedness and response, preventive health services for women, and racial and income inequality and health. Examination of framework for assessing evidence-based policy making and effects of political structure and current political divisions, including efforts such as to repeal and dismantle Affordable Care Act. Letter grading.

**267. Medicare Reform (4)** (Same as Health Policy M252.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing Medicare program and to develop specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading.

**268. Microeconomic Theory of Health Sector (4)** (Same as Health Policy M236.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Microeconomic aspects of health-care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

**269. Healthcare Policy and Finance (4)** (Same as Health Policy M269.) Seminar, three hours; outside study, nine hours. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive healthcare markets. Letter grading.

**270. Economic Principles and Economic Development in Indigenous Communities (4)** (Same as American Indian Studies M207.) Seminar, two hours; discussion, one hour. Limited to graduate students. Familiarization with fundamental concepts, themes, and principles of economic development. Focus on indigenous communities broadly and contrasted with other regions, countries, and communities. Introduction to important concepts such as opportunity cost, economic trade-offs, adverse selection, moral hazard, and discount rates through use of existing research and case studies. These basic concepts are important for graduate students who will be analyzing and evaluating research conducted on and for indigenous peoples and governments. S/U or letter grading.

**C271. International Development (4)** Lecture, three hours. Why are some countries rich, while other countries are poor? What can policymakers do to reduce poverty? Discussion of current research on these questions. Study of both methodologies used to answer questions in development economics, like natural experiments and randomized control trials, as well as relationship between development and institutions, education, growth, culture, and gender. Reading intensive, seminar-style course. Students are expected to



read academic articles in economics and actively participate in discussions. Students also learn how to use data to evaluate policies. Concurrently scheduled with course CM171. S/U or letter grading.

**272. Tools for Causal Inference (4)** Seminar, three hours. Students strengthen critical analysis of empirical evidence. Review of purpose and objectives of impact evaluation. Evaluation of common but often problematic approaches: cross-sectional and before-after comparisons, and case studies of program beneficiaries. Examination of suite of experimental and quasi-experimental approaches: randomized controlled trials, matching, regression discontinuities, and difference-in-differences. Letter grading.

**273. Survey Analysis (4)** Seminar, three hours. Exploration of large-sample size survey use in public policy and related social science disciplines. Topics may include social-psychology of survey response (especially with regard to attitudes and evaluations), issues of question wording and context, interviewer effects, and social desirability pressures; survey-based randomized experiments and unobtrusive measures of behaviors and attitudes; general issues of quantitative research including model specification, random and systematic measurement error, logic of causal analysis, and alternative meanings of statistical importance; and practical considerations in survey analysis including questionnaire construction, sampling and data collection, weighting, variable coding and transformations, scale construction, reliability, and missing values. Students construct and pretest online survey specific to each one's interests. Letter grading.

**274. Social Media and Public Policy (4)** Lecture, three hours. Influence of social media on public discourse and public policy, in U.S. and overseas, has been far-reaching and dramatic. Exploration of positive and negative impacts of social media on individuals and society. Topics include tension between free expression and censorship; and public policy implications and responses (or lack thereof) to use of social media as platform for disseminating fake news, conspiracy theories, white nationalism, racism, and violence. Consideration of whether government should impose content rules on social media companies (as Federal Communications Commission does for broadcast media), or whether corporate terms and conditions of service as self-regulatory model should be relied on. Exploration of how to measure relative impact of social media versus money/campaign contributions on current U.S. political system. Letter grading.

**C275. Advanced Technology: Public Policy, Regulation, and Law (4)** Lecture, three hours. Examination of cutting-edge public policy and regulatory issues implicated by advanced technologies such as artificial intelligence, drones, autonomous vehicles, blockchain/Bitcoin, etc. Exploration of whether and how such new technologies should be regulated. Exploration of how policy-makers should balance need to promote investment and innovation against need to protect public against potential misuse and abuse of these new technologies. Exploration of many issues raised by these technologies such as privacy, national security, network neutrality, intellectual property rights, and more. Concurrently scheduled with course CM175. Letter grading.

**276A. Introduction to Programming and Data Management (4)** (Same as Education M260A.) Lecture, three hours. Fundamental skills of data management. Development of strong foundation in R programming language. R is most popular language for statistical analysis and one of most popular languages for data science applications (e.g., web-scraping, interactive maps, network analysis). Students become proficient in data management and R programming through weekly problem sets, completed in groups. No prior experience with R required. S/U or letter grading.

**276B. Fundamentals of Programming (4)** (Same as Education M260B.) Lecture, three hours. Recommended prerequisite: course M276A. Second course in programming/data science sequence designed for students who do not have programming background. Uses primarily R programming language. Organized around practical programming skills/concepts that are fundamental across modern object-oriented programming languages (e.g., Python, JavaScript). Topics include organizing files, folders, and scripts; reading (importing) and writing (exporting) data; using Git and GitHub for version control and collaboration; iteration (e.g., loops); conditional execution; writing functions; strings and regular expressions. These general programming skills are prerequisite for flashier data science applications (e.g., web-scraping, interactive maps). Students become proficient in programming skills/concepts through weekly problem sets, completed in groups. S/U or letter grading.

**C277. Network Science Using R (4)** Lecture, three hours. No prior knowledge of R required. Designed for graduate students. Network analysis offers framework for understanding how relationships between people, places, and institutions affect public policy outcomes. For example, why individuals decide to protest or vote, amount of education they pursue, or effect of human interference in ecosystem can all be considered using network analysis. Weekly introduction of concept from network analysis, followed by working through it using popular statistical programming language R. Concurrently scheduled with course CM177. Letter grading.

**C279. Social Movements in Theory and Practice (4)** Lecture, three hours. Social movement is group of people pressuring for political or social change over long periods of time. Study focuses on how mass movements form, when and where they are likely to form, what types of tactics they choose, how those tactics affect their success, and role new technologies play. Weekly focus on one specific topic, such as nonviolence or social media, with historic and more recent movements used as case studies. Concurrently scheduled with course CM179. Letter grading.

**280A. Research and Development Policy (4)** (Same as Management-PhD M251.) Lecture, three hours. Examination of research and development as process and as element of goal-oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of and forecasting technological futures. S/U or letter grading.

**280B. Growth, Science, and Technology (4)** (Same as Management M292B.) Lecture, three hours. Economic growth and change. Role of advances in science and technology, and actions of maximizing innovators and factors impinging on their behavior. How technological breakthroughs (or discontinuities) can form new industries or transform nature of and population of firms in existing industries. S/U or letter grading.

**281. Political Environment of American Business (4)** (Same as Management M293A.) Lecture, three hours. Evaluation of certain criticisms made by business of American political system. Designed to provide clearer understanding of principal features of American politics, especially as they influence business enterprise. S/U or letter grading.

**CM282. Science, Technology, and Public Policy (4)** (Same as Electrical and Computer Engineering CM282.) Lecture, three hours. Recent and continuing advances in science and technology are raising profoundly important public policy issues. Consideration of selection of critical policy issues, each of which has substantial ethical, social, economic, political, scientific, and technological aspects. Concurrently scheduled with course CM182. Letter grading.

**C283. Science Policy and Expertise (4)** Lecture, three hours. Introduction to social analysis of science and expertise by considering three overlapping themes: social conditions that affect production of scientific knowledge, debates about expertise and democracy in technical and policy decision-making, and current controversies about expertise and autonomy of science (e.g., conflicts of interest in funding of biomedical research and recent charges of politicization of science). Concurrently scheduled with course C183. Letter grading.

**285. Social Media and Future of Democracy (4)** Seminar, three hours; outside study, nine hours. Examination of social media's role in both fostering and undermining democratic discourse. Comparison of social media's role with that of traditional media and examination of social media's impact on traditional media. Exploration of possible responses in formal regulation and social media companies' content moderation regimes. Concurrently scheduled with Law 511. Letter grading.

**286. Policy Analysis of Emerging Environmental Technologies (4)** (Same as Urban Planning M268.) Lecture, three hours. Acquisition and utilization of economic, finance, planning, and policy analytic tools needed to evaluate factors that drive market adoption from early to middle market phases. Rooftop solar, electric vehicle, and energy efficiency as focal examples, with emphasis on role of policy and planning incentives intended to spur adoption. Letter grading.

**291A. Public Policy Variable Topics Seminar (4)** Seminar, three hours. Emerging issues in public policy. May be repeated for credit. Letter grading.

**C291B. Variable Topics Seminar: Public Policy (4)** Seminar, three hours; discussion, one hour (when scheduled) outside study, eight hours. Emerging issues in public policy. May be repeated for credit. Concurrently scheduled with course CM191B. Letter grading.

**291C. Special Topics in Public Affairs (4)** (Same as Social Welfare M203X and Urban Planning M210A.) Seminar, three hours; outside study, nine hours. Advanced seminar on emerging issues across public policy, social welfare, and urban planning. May be repeated for credit. S/U or letter grading.

**C291G. Special Topics in Global Studies and Public Policy (4)** Seminar, three hours. Examination of one or more topics related to public policy and global studies. May be repeated for credit with topic change. Concurrently scheduled with course CM191G. Letter grading.

**291I. Special Topics in Public Policy: International Policy (4)** Seminar, three hours. Emerging issues in international policy. May be repeated for credit. S/U or letter grading.

**291R. Special Topics in Public Policy: Policy Research (4)** Seminar, three hours. Emerging issues in policy research. May be repeated for credit. S/U or letter grading.

**297A. Public Policy Special Topics (2)** Lecture, three hours. Study of emerging issues in public policy. May be repeated for credit. S/U grading.

**297B. Public Policy Analysis Lectures (2)** Lecture, two hours. Limited to second-year MPP students. Venue for policymakers, practitioners, and academics to present, discuss, and analyze current policy questions. Attending, formally analyzing, and engaging with policy professionals at these lectures adds to pedagogical and intellectual maturity of students as they gain greater understanding of broad range of policy-related topics. S/U grading.

**297C. Current Issues in Public Affairs (2)** (Same as Social Welfare M297B and Urban Planning M297B.) Lecture, one to two hours. Introduction to wide range of current issues in public affairs. Luskin school faculty present material from their research and teaching. Assigned readings are distributed in advance of each meeting. S/U grading.

**297D. Public Policy Student-Initiated Special Topics (2)** Seminar, three hours. Student-initiated and -facilitated special topics on emerging issues in public policy. May be repeated for credit. S/U grading.

**297F. Career Planning and Management (2)** (Same as Social Welfare M297F and Urban Planning M297F.) Tutorial, six hours. Designed to meet professional development needs of first-year Public Policy, Social Welfare, and Urban Planning students. Development of career management skills while balancing busy life of graduate student. More than just deciding on chosen career path, career planning and management involves taking concrete steps to become career ready. Students gain fundamental career management skills to be competitive on job market, including creating competitive résumé and practicing interviewing articulately. Offers opportunity to learn professional development skills to assist with career planning strategies. S/U grading.

**297P. Public Policy Seminar Series (2)** (Formerly numbered 297C.) Seminar, two hours; discussion, one hour. Weekly social science research lectures covering range of policy-relevant topics and discussion of research findings with professor. Examination of quality and relevance of research findings and connections between research, public policy curriculum, and real-world policy problems. May be repeated for credit. S/U or letter grading.

**298A. Applied Policy Project I (2)** Seminar, 90 minutes; outside study, four and one half hours. Requisite: course 210. Limited to MPP students. First course of year-long sequence designed to ensure that students and their teams are fully prepared to launch their projects at start of Winter Quarter. Students form teams that are assigned to seminars and instructors, identify clients, select and refine policy questions motivating their projects, develop

and refine basic work plans, learn about various methods of data collection, and complete and submit all necessary forms required for human subjects research. S/U grading.

**298B. Applied Policy Project II (4)** Seminar, three hours; outside study, nine hours. Preparation: completion of MPP core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298A. Second course in four-course sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. In Progress grading (credit to be given only on completion of course 298C).

**298C. Applied Policy Project III (2)** Seminar, three hours; outside study, six hours. Preparation: completion of MPP core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298B. Third course in four-course sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. Conclusion of written report started in course 298B. Letter grading.

**298D. Applied Policy Project IV (2)** (Formerly numbered 298C.) Seminar, two hours. Preparation: completion of MPP core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298B. Fourth course in four-course sequence in which students complete research and report writing for their year-long projects, conduct oral presentations of their applied policy projects, and give written feedback on other student presentations. Letter grading.

**495. Teaching Luskin Public Affairs (2)** (Same as Social Welfare M495 and Urban Planning M495.) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. S/U grading.

**496. Public Policy Internships (4)** Fieldwork, four hours. Public policy internships for Master of Public Policy (MPP) and MPP/dual degree students. May not be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. Directed Studies (2 to 8)** Tutorial, to be arranged. Limited to graduate students. Individual programming for selected students to permit pursuit of a subject in greater depth. S/U or letter grading.

# Radiation Oncology

## Radiation Oncology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Radiation Oncology (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Religion, Study of

## Religion, Study of Courses

### Lower Division

**M4. Introduction to History of Religions (5)** (Same as History M4.) Lecture, three hours; discussion, two hours. Comparative study of eight major religious traditions, with emphasis on their beginnings and subsequent decisive changes in their respective historical developments and interactions. Equips students with intellectual tools necessary for thinking analytically, empathetically, and comparatively about fascinating human phenomena identified as religious, such as sacred acts, places, words, and persons in their varied historical contexts. Development of student skills in critical thinking, analyzing documents, and making persuasive arguments based on historical evidence. P/NP or letter grading.

**10. Introduction to Judaism (5)** (Same as Jewish Studies M10.) Lecture, three hours; discussion, one hour. Judaism's basic beliefs, institutions, and practices. Topics include development of biblical and rabbinic Judaism; concepts of god, sin, repentance, prayer, and the messiah; history of Talmud and synagogue; evolution of folk beliefs and year-cycle and life-cycle practices. P/NP or letter grading.

**11. Religion in Los Angeles (5)** Lecture, four hours. Introduction to varieties of religious experience in Los Angeles and its environs. Presentations, required readings, and (where possible) site visits to examine selected faiths and spiritual practices throughout Southern California and provide deeper understanding of myriad ways that sacred is made manifest and encountered. Foundational academic orientations within study of religion (anthropological, historical, psychological, sociological, etc.) used as framework to examine and interpret almost unparalleled religious diversity of City of Angels. Recognizing that spiritual traditions are crucial reflection of region's ever-changing demographics, emphasis on role of ethnicity, gender, nationality, and race in shaping of religious landscape. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Islam (5)** (Same as Islamic Studies M20.) Lecture, three hours; discussion, one hour. Genesis of Islam, its doctrines, and practices, with readings from Qur'an and Hadith; schools of law and theology; piety and Sufism; reform and modernism. P/NP or letter grading.

**40. Christianities East and West (5)** (Same as Slavic M40.) Lecture, three hours; discussion, one hour. Survey of three major historical branches of Christianity—Eastern and Oriental Orthodoxy, Roman Catholicism, and Protestantism, contrasting how history, dogma, culture, and community structures develop in those three traditions. P/NP or letter grading.

**50. Origins of Judaism, Christianity, and Islam (5)** (Same as Ancient Near East M50B and Middle Eastern Studies M50B.) Lecture, three hours; discussion, one hour. Examination of three major monotheisms of Western cultures—Judaism, Christianity, and Islam—historically and comparatively. Development, teachings, and ritual practices of each tradition up to and including medieval period. Composition and development of various sacred texts, highlighting key themes and ideas within different historical and literary strata of traditions, such as mechanisms of revelation, struggle for religious authority, and common theological issues such as origin of evil and status of nonbelievers. Letter grading.

**55. Spirit of Medicine (5)** Lecture, three hours; discussion, one hour. Examination of relationship between medicine, religion, and society; how religion is help or hindrance to health; and what health care might look like beyond biomedical clinic. Examination of historical entwinement of religion, medicine, and society in Western antiquity to early modern period; disentanglement in Enlightenment to early 20th century; and confluence of science, technology, and capitalism in biomedicine compartmentalized from religion today. Conceptualization of rhetorics and epistemologies of healing—what it means to be healed and how one would know—and put in tension with faith healings and religion-as-medicine, medicine-as-religion, and integrated approaches. Analysis of alternatives to biomedical status quo in theoretical medicine and in health care delivery, with particular attention to questions of justice and holistic care in U.S. and of policy and practice globally. P/NP or letter grading.

**60A. Introduction to Buddhism (5)** (Same as Asian M60.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M60W. Knowledge of Asian languages not required. General survey of devel-

opment of Buddhism in India, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Letter grading.

**60B. Introduction to Chinese Religions (5)** (Same as Chinese M60.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course M61W. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. P/NP or letter grading.

**60C. Introduction to Korean Religions (5)** (Same as Korean M60.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. General survey of history of religions in Korea—Shamanism, Buddhism, Confucianism, Daoism, Christianity, Tonghak, and some new religions—with focus on religious doctrines, practices, Korean characteristics, and social impacts. P/NP or letter grading.

**60D. Religion in Classical India: Introduction (5)** (Same as South Asian M60.) Lecture, three hours; discussion, one hour. Introduction to religions of classical India—Vedic, Brahmanical, Hindu, Jain, and Buddhist—paying equal attention to change and continuity, with emphasis on chronological development. P/NP or letter grading.

**60E. Religious Traditions in Southeast Asia (4)** (Same as Southeast Asian M60.) Lecture, three hours. Introduction to historical development and contemporary practice of religions in Southeast Asia. Examination of indigenous religious beliefs and major textually based religions introduced to region, including Hinduism, Buddhism, Islam, and Christianity. P/NP or letter grading.

**60W. Introduction to Buddhism (5)** (Same as Asian M60W.) Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60A. Knowledge of Asian languages not required. General survey of Buddhist worldview and lifestyle, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Particular attention to problems involved in study of religion. Satisfies Writing II requirement. Letter grading.

**61. Introduction to Zen Buddhism (5)** (Same as Asian M61.) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Introduction to Zen traditions and to interplay between Zen and other fundamental cultural and religious concerns in East Asia. Topics include role of Zen within Buddhist thought and practice, artistic and literary arts, society, and daily life. Letter grading.

**61W. Introduction to Chinese Religions (5)** (Same as Chinese M60W.) Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course M60B. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. Satisfies Writing II requirement. Letter grading.

**70. Demons, Fear, and Uncanny in Ancient World (5)** (Same as Ancient Near East M70.) Lecture, three hours; discussion, one hour. Consideration of place of demons and fear in several different societies and cultures in ancient world: Mesopotamia; ancient Egypt, Greece, and Rome; and Biblical and early Jewish contexts. Investigation into why demons and monsters existed in these cultures; how they were opposed or protected again; and what these different societies feared, and how that fear was represented. As demons and monsters are reflections of particular culturally specific fears and norms, studying them allows for examination of societies that constructed them. Examination of how fear of threats such as disease, illness, and death were constructed alongside fears of foreign and of women. Critical examination of wide range of primary source texts, addressing core question of how different societies construct unique fears—and how those fears shape those societies in turn. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good

academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. History of Study of Religion (4)** Lecture, four hours. Recommended prerequisite: History 4. Survey of major modern theories, methods, and approaches to study of religion to situate them within their own historical, philosophical, and social contexts. Critical consideration of changing and contested meanings of term religion and its relationship to such categories as science and magic, as well as to other domains of social experience. Examination of how study of religion has interacted with other academic fields, especially biblical studies, anthropology, sociology, psychology, and evolutionary biology. P/NP or letter grading.

**105A. Bahá'í Faith in Iran: Historical and Sociological Survey (4)** (Same as Iranian M105A.) Lecture, three hours. Readings in English. Rise and development of Bábí and Bahá'í religions in context of 19th century Iran. Focus on personalities of Báb, Bahá'u'lláh, and 'Abdu'l-Bahá. May be taken independently for credit. P/NP or letter grading.

**105B. Bahá'í Faith in Iran: Survey of Bahá'í Scriptures and Thought (4)** (Same as Iranian M105B.) Lecture, three hours. Readings in English. Analysis of major writings by Báb, Bahá'u'lláh, and 'Abdu'l-Bahá. Emphasis on mystical and social principles. May be taken independently for credit. P/NP or letter grading.

**105C. Bahá'í Faith in Iran: 20th-Century Iran and the Bahá'ís (4)** (Same as Iranian M105C.) Lecture, three hours. Readings in English. Focus on history of 20th-century Iran beginning with constitutional revolution, development and persecution of Bahá'í community, and latter's relation to reform movements in Iran. May be taken independently for credit. P/NP or letter grading.

**106A. Premodern Islam (4)** (Same as History M106.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of early development of Islam with special attention to doctrine of nature of God, human responsibility, guidance, revelation and religious authority, duties of believers, ritual, law, sectarian movements, mysticism, and popular religion. P/NP or letter grading.

**107. Islam in West (5)** (Same as Arabic M107 and Islamic Studies CM107.) Lecture, three hours; discussion, one hour. Acquisition of understanding of basic doctrines and practices of Islam. Survey of history of Islam in West, with focus on U.S. and France. Analysis of issues relevant to growth and development of selected Muslim communities in West. Exposure to diverse expressions of Islam through independent research on Muslim communities and institutions in U.S. Development of strong analytical writing and speaking skills. P/NP or letter grading.

**108. Qur'an (4)** (Same as Arabic CM106.) Lecture, three hours. Introduction to Qur'an, its early history, and form and function as scripture in Muslim history, civilization, and culture. Focus also on Qur'anic interpretation, its relationship to Islamic law, and Qur'an in contemporary discourses such as human rights, feminism, and contemporary reform movements. Primary sources include excerpts from Qur'an, Qur'anic interpretation, and selected writings of Muslim thinkers and reformists. Strong focus on analytical and writing skills through in-class assignments and discussion. Letter grading.

**110. Religion and Violence (4)** Seminar, three hours; discussion, one hour. Exploration of capacity of religion to mobilize and legitimate violence. Materials include theoretical texts by Rene Girard, Walter Burkert, Jonathan Z. Smith, and David Rapoport and case studies dealing with religion and violence in India, Northern Ireland, Egypt, Lebanon, Israel, Palestine, Sri Lanka, and the U.S. Letter grading.

**113. In Search of Meaning: From Holy Texts to Hollywood (5)** Lecture, two and one half hours. Exploration of topics such as existence of a higher being, meaning of life, one's role in world, one's obligations to others, human nature, and existence of evil. Examination of texts ranging from scriptures to film that reflect religious, philosophical, and secular ways people—over centuries and throughout world—have sought answers to basic questions of human existence. Today, in time of global disruption, people still search for meaning and purpose on path is rarely straight forward or upward, and often requires movement backward or downward. Introduction to how various thinkers and cultures have approached life's big questions, including religious and philosophical responses to them. Students are encouraged to think critically about them and formulate their own responses. P/NP or letter grading.

**115. Islam and Other Religions (5)** (Same as Islamic Studies CM115.) Lecture, three hours; discussion, one hour. Students gain familiarity with historical cases and modes of interaction between Muslims and non-Muslims in plural societies. Consideration of axis questions such as how does Qur'an reflect religious plurality; how does it situate Islam vis-à-vis its alternatives; what en-

counters did rapid expansion of Islam bring about in diverse societies; how did Islam and other religions change through debate, war, and exchange of ideas; what roles has political power played in conditioning interreligious interaction; how have conversion and hybridity affected what it means to be Muslim; what is different about interreligious interactions in secular states and societies; and how is past invoked to justify opinions and policies today. Investigation of these questions by conducting microstudies: close readings of sources through theoretical lens. P/NP or letter grading.

**118B. Kierkegaard and Philosophy of Religion (4)** (Same as Philosophy M118B.) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Study of selected works of Kierkegaard on philosophy of religion, with emphasis on interpretation of texts. P/NP or letter grading.

**120. Judaism, Christianity, and Islam: Comparative Approach (4)** Seminar, three hours. Introduction to analysis of complex relationship of Judaism, Christianity, and Islam as living traditions whose historical origins, current interactions, and future development continue to shape spiritual, cultural, political, and social aspects of human civilization in 21st century. Letter grading.

**132. Ancient Egyptian Religion (5)** (Same as Ancient Near East M130.) Lecture, three hours; discussion, one hour. Introduction to religious beliefs, practices, and sentiments of ancient Egypt to study Egyptian religion as coherent system of thought and sphere of action that once served as meaningful and relevant framework for understanding physical reality and human life for inhabitants of Nile Valley. General principles as well as developments through time (circa 3000 BC to 300 CE). Topics include mythology, temple and cult, magic, and personal piety. P/NP or letter grading.

**133. Bible and Qur'an (4)** (Same as Middle Eastern Studies M133.) Lecture, three hours. Survey of Hebrew Bible/Old Testament, New Testament, and Qur'an to familiarize students with content of scriptures of Judaism, Christianity, and Islam, and sociocultural background from which these multifarious texts emerged, and to explore major themes and consider variety of approaches to scripture. Development of appreciation for role scripture plays in these religious systems and in American culture and society. P/NP or letter grading.

**135. Religion in Ancient Israel (4)** (Same as Ancient Near East M135.) Lecture, three hours. Introductory survey of various ancient Israelite religious beliefs and practices, their origin, and development, with special attention to diversity of religious practice in ancient Israel and Canaan during 1st millennium BCE. P/NP or letter grading.

**140. Undergraduate Seminar: Study of Religion (4)** Seminar, three hours. Interdisciplinary approach to some major topics in study of religion, such as religion and politics, mysticism, ideas of revelation, myth and religion, worship and ritual. May be repeated for credit with consent of instructor. P/NP or letter grading.

**142C. History of Religion in U.S. (4)** (Same as History M142C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of religious dimension of people's experience in U.S. Examination of number of religious traditions that have been important in this country, with emphasis on relating developments in religion to other aspects of American culture. P/NP or letter grading.

**150. Women, Gender, and Religion (4)** Lecture, four hours. Investigation and consideration of roles, status, and representations of women and gender in one or more religious traditions. Examination of how cultural conceptions of gender as well as social realities (as far as they can be known) for women and men in particular historical periods shape and are shaped by these religious traditions, including discussions regarding ritual practices, spirituality, sexuality, sexual renunciation, religious authority, marriage and family life, fertility, conceptions of body, public life, and/or literary representations of gender (including those of divine). Variety of approaches to be employed, including feminist, literary, historical, sociological, and anthropological. P/NP or letter grading.

**155. Angels, Demons, and End of World: Magic, Mysticism, and Apocalypse in Jewish Traditions (4)** (Same as Jewish Studies M155.) Lecture, three hours. Focus on popular Jewish traditions of magic, mysticism, apocalypse, and various contours of Judaism's textual and material traditions in antiquity. Examination of texts and objects from Hebrew Bible to modern discussions of Kabbalah and end of world, concentrating on Jewish antiquity. Discussion of texts, including Hebrew Bible, Dead Sea Scrolls, extra-biblical Jewish texts, New Testament, and rabbinic and later Jewish literature. Discussion of socio-historical context in order to decipher features and functions of magic, mysticism, and apocalypse in antiquity and modernity. P/NP or letter grading.

**156. Religion and Liberation (4)** Lecture, two hours; discussion, 30 minutes. Study traces ways religion and liberation have been understood to connect in the later 20th-century phenomenon called liberation theology. Started by James Cone's embrace of Christian Black Power movement in the U.S. and

Gustavo Gutiérrez's Latin American theology against poverty, this method of religious interpretation spread across world and sacred traditions. Reading of central texts that sparked the movement, and sampling of various ways movement was picked up and adapted by people of other identities: queer, South African, Islamic, Palestinian, etc. Highlights key issues of the relationship between religion and liberation, political-religious theory, utopia, oppression, justice, and hope. P/NP or letter grading.

**160. Religion, Film, and Media (4)** Lecture, four hours. Examination of complex relationship between religious traditions and various media (e.g., print, film, photography, television, radio, and electronic) as they have intersected in specific historical and cultural contexts. Illumination of role of media in forming and expressing religious ideas, practices, and identities. Topics may include representations of religious groups, visual and aural piety, identity formation, interreligious conflict, religious education, and use of media technologies for propaganda or proselytizing purposes. Historical, sociological, and anthropological approaches used in concert with various methodologies current within media studies. P/NP or letter grading.

**161A. Chinese Buddhism (4)** (Same as Chinese CM160.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Letter grading.

**161B. Japanese Buddhism (4)** (Same as Japanese CM160.) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Letter grading.

**161C. Korean Buddhism (4)** (Same as Korean CM160.) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Letter grading.

**161D. Buddhism in India (4)** (Same as South Asian CM160.) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptional sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Letter grading.

**172. Bible and Its Interpreters (4)** (Same as Ancient Near East M170.) Lecture, three hours. Knowledge of original languages not required. Bible (Old and New Testaments) as book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to present. P/NP or letter grading.

**173C. Shinto, Buddhism, and Japanese Folk Religion (4)** (Same as History M173C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social dimension of various Ways, great and little: Shinto's connection with cultural nationalism, Buddhism's medieval Reformation and Zen's relation to warrior culture, folk religious aspects such as shamanism, ancestor worship, and millenarianism. P/NP or letter grading.

**174D. Indo-Islamic Interactions, 700 to 1750 (4)** (Same as History M174D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical introduction to Muslim communities of what eventually became nations of India, Pakistan, and Bangladesh. Topics include social, political, religious, and cultural history. P/NP or letter grading.

**174E. Indo-Islamic Interactions, 1750 to 1950 (4)** (Same as History M174E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interplay of factors that, from Christian missionaries to Islamic madrasa schools and colonial rebellions, gave shape to multifaceted Muslim reformation in context of colonial modernity. P/NP or letter grading.

**175. Topics in Philosophy of Religion (4)** (Same as Philosophy M175.) Lecture, three hours; discussion, one hour. Requisite: Philosophy 21 or 22. Intensive investigation of one or two topics or works in philosophy of religion, such as attributes of God, arguments for or against existence of God, or relation between religion and ethics. Topics announced each term. May be repeated for credit with consent of instructor.

**177. Variable Topics in Religion (4)** Seminar, three hours. Interdisciplinary approach to some major topics in study of religion, such as religion and science, religion and society, politics, mysticism, ideas of revelation, scripture, myth and religion, worship and ritual. May be repeated for credit with topic change. P/NP or letter grading.

**178. Variable Topics (4)** (Same as Middle Eastern Studies M178.) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion and Middle Eastern studies. May be repeated for credit with topic change. P/NP or letter grading.

**179. Topics in Moral Philosophy: Evil (4)** (Same as Philosophy M152B.) Lecture, three to four hours; discussion, one hour (when scheduled). Preparation: one philosophy course. Exploration of philosophical issues raised by topic of evil actions and/or evil people. Issues may include nature of evil, problem of evil and theodicies, responsibility for evil and problem of free will, causes and motivations for evil action, and variant responses to evil such as forgiveness and punishment. P/NP or letter grading.

**180. Religion and Modern Critical Thought (4)** Lecture, four hours. Examination of how various traditions of modern critical thought inform academic study of religion, with primary focus on philosophical analysis of religious belief and practice and its relation to other areas of theoretical discussion, such as philosophy of language, discourse analysis, epistemology, metaphysics, ethics, practice theory, and political theory. Topics may include nature of religious experience and its epistemic status, embodiment and religious self, relationship between knowledge, faith, and doubt, nature and function of religious language, relationship between science and religion, religious belief and standards of rational discourse, theoretical approaches to problems of religious diversity and competing truth claims, formation of religious and secular in modernity. P/NP or letter grading.

**182A. Ancient Jewish History (4)** (Same as History M182A and Jewish Studies M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

**182B. Medieval Jewish History (4)** (Same as History M182B and Jewish Studies M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

**184A. Jewish Civilization: Encounter with Great World Cultures (4)** (Same as History M184A and Jewish Studies M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

**185D. Religions of Ancient Near East (4)** (Same as Ancient Near East M185D and History M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

**186A. History of Early Christians (4)** (Same as History M185F.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Christian movement from its origins to circa 160 CE, stressing its continuity/discontinuity with Judaism, various responses to Jesus of Nazareth, writings produced during this period, movement's encounters with its religious, social, and political world, and methods of research. P/NP or letter grading.

**186B. Religious Environment of Early Christians (4)** (Same as History M185G.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rich variety in religious practice and thought in Mediterranean world of 1st century CE as in context of developing Christian movement. Topics include Pharisees, Qumran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, mysteries, astrology, magic, gnosticism, and emperor-worship. P/NP or letter grading.

**186C. Jesus of Nazareth in Historical Research (4)** (Same as History M185I.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course M185F. Designed for juniors/seniors. Stimulated by significant post-Enlightenment historical evaluations, students are led into firsthand knowledge (in translation) of various multilayered sources for reconstruction of life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts. P/NP or letter grading.

**187XP. Religion, Society, and Civic Engagement (4)** (Formerly numbered 187SL.) Seminar, three hours; fieldwork, two hours. Examination of variable topics related to religion and civic engagement, with particular emphasis on justice and coexistence in pluralistic societies. How are we to best enact—or manage—clashing visions of what Los Angeles is and ought to be; theoretical and practical ways citizens work out tensions in what city of angels means. Key themes may include cities and utopia, secularity and secularism, political economy, trust, solidarity, access, equality, liberty, philanthropy, and eschatology. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Study of Religion (4)** Seminar, four hours. Preparation: completion of preparation for major courses and at least half of upper-division courses required for major (including theory and method courses). Designed for senior majors. Seminar on central method and/or theme in study of religion. Refinement and integration of this knowledge by means of close reading and analysis of primary documents, debating contested issues, and researching and writing original paper. P/NP or letter grading.

**198. Honors Research in Religion (4)** Tutorial, three hours. Limited to juniors/seniors. Development and completion of 40-page honors thesis under direct supervision of faculty member. Must be taken twice to receive departmental honors program credit. Individual contract required. May be repeated for maximum of 12 units. Letter grading.

**199. Directed Research in Study of Religion (2 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. Twelve units may be applied toward major. Individual contract required. Letter grading.

# Research Practice

## Research Practice Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**96. Bruins Studying Bruins: Introduction to Higher Education Research through Course-Based Collaborative Research Project (2)** Seminar, two hours. Course-based research experience that introduces students to higher education institutional research, assessment, and accreditation. Students collaborate on research assessment project that is used toward campus instructional improvements and its accreditation documentation. P/NP grading.

**97XA. PEERS Freshman Seminar: Succeeding in Science (1)** (Formerly numbered Ecology and Evolutionary Biology 97XA.) Seminar, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures, workshops, and discussions to enhance student success in sciences by developing critical academic survival skills, acquainting students with practice of science, and highlighting opportunities available to participate in research as undergraduate students. P/NP grading.

**97XB. PEERS Sophomore Seminar: Pathways in Majors, Careers, and Entry into Research (1)** (Formerly numbered Ecology and Evolutionary Biology 97XB.) Seminar, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures and workshops to enhance student success in sciences by acquainting students with practice of science, opportunities available to participate in research as undergraduate students, and careers available to students with science degrees. P/NP grading.

**97XC. Transfer Success and Pathways to Undergraduate Research for Life Sciences Majors (4)** Seminar, one hour. Limited to new transfer students. Designed to provide essential academic skills for life science transfer students, and promote engagement in university research including instruction on securing research opportunities and skills necessary for research and professional success, communication of research, and exploring funding resources and life science careers. P/NP grading.

**97XD. Research Unwrapped: Introduction to Research in Sciences (1)** Seminar, two hours. Exposes students to university research and wide array of research practices in sciences. Introduction to benefits of undergraduate research, scientific method, information and publication search strategies, science communication, and degree and careers requiring research experience. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**102. Research Practice: Research Revealed (2)** (Formerly numbered 191A.) Seminar, two hours. Limited to students participating in Research Revealed undergraduate research preparation program. Students are prepared to conduct their own research, apply to research programs, or assist faculty members. Topics vary by term. P/NP grading.

**103. Research Practice: Student Research Forum (2)** Lecture/activities, four hours. Designed to promote deep engagement in university research, including instruction on securing research opportunities, skills necessary for research and professional success, exploring research internships on and off campus, and communication of research across all disciplines. May be repeated with consent of instructor. P/NP grading.

**105. Effective Science Communication (2)** Seminar, two hours. Effectively communication science in essential for careers in science, technology, engineering, and mathematics. Designed to strengthen and practice skills of sharing science. Emphasis on verbal communication and presentations, drawing on storytelling techniques to craft more compelling talks. Students have many hands-on experiences with presenting their research in different formats, for different audiences, and with different objectives. P/NP grading.

**106. Scientific Leadership and Ethics (1)** Seminar, two hours. Limited to undergraduates in UC LEADS or Clare Boothe Luce Scholars Programs. Individuals involved in science, technology, engineering, and mathematics (STEM) research are promoted throughout their careers due to their technical and scientific acumen. Many researchers attain leadership positions including running their laboratories, heading engineering departments, or working on research projects in which they are responsible for guiding students. The widely held system of training and promotion in the STEM fields does not provide researchers with skills the vast majority of employers feel are necessary for success in leadership endeavors. Researchers that do not find themselves in a managerial position need these social and organizational skills while working for principal investigators and research leaders. Provides instruction on these essential skills for STEM researchers through role-play, reflective journaling, problem-solving, and case studies. These principles are paired with lessons on ethics in the laboratory, focusing on real-world examples that may be faced by scientists and leaders. P/NP grading.

**110A. Careers in Libraries and Archives (2)** (Formerly numbered Honors Collegium 101M.) Seminar, two hours. Study of wide variety of careers in libraries and archives. Introduction to career pathways of various professionals. Brief discussion of professional issues in these fields especially in relation to recruitment and retention of individuals in these professions. Discussion of careers in variety of locations and types of libraries and archives, with emphasis on outstanding professionals at UCLA. Stronger focus on careers in academic spaces. P/NP grading.

**110B. Preparing for Post-UCLA Success: Fellowships, Graduate School, and More (2)** (Formerly numbered Honors Collegium 101K.) Seminar, two hours. Prepares students to achieve goals beyond UCLA. Participants reflect on values and interests, and learn what is required for effective applications to graduate school, scholarships, and more. Review of process of applying for nationally competitive awards such as Truman, Rhodes, Marshall, and others. Students learn to craft effective curricula vitae, strong personal statements, and compelling research proposals. Students learn to solicit strong letters of recommendation. Skills are preparation for scholarship/fellowship application process, as well as graduate school and job application process. P/NP grading.

**120. Research Today: Sources, Tools, and Strategies (2)** Seminar, two hours. Research is process of exploration, experimentation, and discovery. Study is designed to help students engage with this process and prepare for research-intensive honors thesis. Students collaborate with peers, mentors, and experts across the UCLA library as they develop their own approach to research. P/NP grading.

**130. Integrity in Science Research (2)** Seminar, two hours. Limited to students in funded research programs, or completing individual study senior thesis. Exploration of research integrity and discussion of important ethical issues that impact scientific investigation. Presentation of major issues in field of research ethics and integrity. Students work together in small groups to present and lead discussions on ethical dilemmas. Focus on research integrity issues that impact broad group of undergraduate researchers on UCLA campus. Student presentations are topical in nature, and vary from year to year based on recent ethical events. P/NP grading.

**182. Developing Your Research Skills: Reading, Writing, and Sharing Academic Research in Humanities and Social Sciences (4)** Seminar, three hours; workshop, three hours. Designed for visiting juniors and seniors in Mellon Mays Undergraduate Fellowship program who are engaged in multi-year research projects in humanities and social sciences at home institutions. Focus on development of three important research skills: reading scholarly writing, writing for scholarly audiences, and presenting research for academic and general audiences. Students are supported in producing seven to eight pages of polished writing in form of literature review, thesis chapter, or another meaningful unit of writing as agreed upon with instructor. Students learn to write abstract and present work orally and visually. Approaches reading, writing, and sharing academic research as ongoing, iterative processes. Students gain necessary tools to succeed in all parts of research process. Concludes with symposium in which work is presented. P/NP grading.

**192A. UCLA Undergraduate Science Journal (2)** Seminar, two hours. Designed to guide students through critical aspects of preparing UCLA Undergraduate Science Journal for publication. These aspects of writing, reviewing, editing, and formatting articles for publication are essential to research process for sharing findings and engaging with broader scientific and engineering community. Students develop teamwork and project management skills that can help in future career paths. May be repeated for maximum of 10 units. P/NP grading.



**192B. Aleph: UCLA Undergraduate Research Journal for Humanities and Social Sciences (2)** (Formerly numbered Honors Collegium 101C.) Seminar, two hours. Limited to students on editorial board of Aleph journal. Students participate in workshops to assess, edit, and publish journal articles. May be repeated for maximum of 10 units. P/NP grading.

**193. Variable Topics: Research Practice Journal Club (2)** (Formerly numbered Neurobiology M171 and Physiological Science M171.) Seminar, two hours. Limited by application. Centered on presentation and critical analysis of scientific journal articles, and presentation of students' own research. Intensive literature-based training program which increases student confidence and scientific literacy, and facilitates transition to postgraduate study. May be repeated for maximum of 10 units. P/NP grading.

**194A. Mellon Mays Undergraduate Fellows Research Seminar (2)** (Formerly numbered Honors Collegium 101J.) Seminar, two hours. Limited to current Mellon Mays undergraduate fellows. Designed to support students in their research, and in preparation for graduate school and professional careers. May be repeated five times for credit. P/NP grading.

**194B. Research Seminar: Writing Research Proposals and Graduate Applications (2)** Seminar, two hours. Research seminar for undergraduates applying in fall for science, technology, engineering, and mathematics (STEM) PhD or MS programs. Designed to support students in their research, and in preparation for graduate school and professional careers. Letter grading.

**194C. Mastering Oral Presentation of Your Research (2)** Seminar, two hours. Examination of best practices in oral presentation of scientific research. Familiarization with rubric used to evaluate oral research presentations given by graduate students and peers. Students present their research, tailored to diverse audience of science-savvy students, and give feedback to their peers. Oral and written feedback is used to help students revise their talks. Culminates with second research presentation by each student. Letter grading.

**195. Research Activities (4)** Tutorial, 12 hours. Designed to provide academic context for off-campus, remote work at research institutions outside of UCLA. Students work independently with graduate student mentor to learn about research teams, discuss management of research protocols and data, and work weekly on science writing, culminating in production of research abstract and assembly of research paper. May be repeated for credit up to two consecutive quarters. Individual contract required. Letter grading.

## Science Education

### Science Education Courses

#### Lower Division

**1XP. Classroom Practices in Elementary School Science (2)** (Formerly numbered 1SL.) Seminar, 90 minutes; fieldwork, three hours per week for eight weeks. Introduction for prospective science teachers to field of elementary education and teaching and learning of science in elementary school classrooms. Pairs of students are placed in local elementary school classrooms to observe, participate, and assist mentor teachers in instruction. Introduction to inquiry-based learning practices, national and California standards, reading and learning differences in children, and cognitive ability of elementary-age children as it relates to introduction of concepts, curricular planning, classroom management, and learning assessment. P/NP grading.

**10XP. Classroom Practices in Middle School Science (2)** (Formerly numbered 10SL.) Seminar, 90 minutes; fieldwork, three hours. Introduction for prospective science teachers to field of secondary education and teaching and learning of science in middle school classrooms. Pairs of students are placed in local middle school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in middle school culture, cognitive development of students at this level, and best means to teach appropriate science concepts at this level. P/NP grading.

**15XP. Exploration of K-12 Classroom Practices in Science Education (3)** Seminar, two hours; fieldwork, two hours. Introduction to field of K-12 science education including equity and access, pedagogy, and career exploration. Examination of broad range of student developmental levels and science learning progressions from kindergarten to high school. Pairs of students are placed in local elementary, middle, or high school classrooms to observe, participate, and assist mentor teachers in instruction. Students engage in fieldwork lesson study including identifying Next Generation Science Standards (NGSS), lesson development, lesson implementation, and lesson reflection. P/NP grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

#### Upper Division

**100XP. Classroom Practices in High School Science (5)** (Formerly numbered 100SL.) Seminar, three hours; service learning fieldwork, three hours. Recommended prerequisite: course 1XP or 10XP. Introduction for prospective science teachers to field of secondary education and teaching and learning of science in high school classrooms. Pairs of students are placed in local high school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in high school culture, cognitive development of students at this level, and best means to teach appropriate science concepts at this level. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

# Slavic, East European, and Eurasian Languages and Cultures

## Bulgarian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Bulgarian (5)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic course in Bulgarian language. P/NP or letter grading.

**101B. Elementary Bulgarian (5)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Basic course in Bulgarian language. P/NP or letter grading.

**101C. Elementary Bulgarian (5)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Basic course in Bulgarian language. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Central and East European Studies Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**31. Introduction to Slavic, East European, and Central Asian Cultures through Film (5)** Lecture, three hours; discussion, one hour. Interdisciplinary introduction to diversity of languages and cultures represented in Department of Slavic, East European, and Eurasian Languages and Cultures through medium of film. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**91. Culture and Society in Central and Eastern Europe (5)** Lecture, three hours; discussion, one hour. Interdisciplinary introduction to main themes and concepts of Central and East European studies, including historical background, nation states and ethnic groups, and languages spoken in area. Focus on politics, society, and culture in communist and early post-communist periods: party control and dissidence; national economic planning and private entrepreneurship; atheist education and state religion; politically engaged literature, mass media, and freedom of expression; sports, visual and performing arts, and nationalism. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M120. Women and Literature in Southeastern Europe (4)** (Same as Comparative Literature M120.) Seminar, three hours. Examination of changing roles of women in Balkan countries (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Serbia, Slovenia, Turkey) in last forty years. Emphasis on cultural, social, political, and economic factors affecting women's roles during countries' transition from agricultural to industrial economy and from communism to post-communism (in former communist countries). Sensitizes students to complexity of issues in region and helps them better understand multiplicity of causes of present situation. Interdisciplinary study, drawing on sociological/women's studies, articles, and short fiction by women writers for analysis. Discussion of topics covered in articles, positions taken by authors, and ways in which aspects of Southeast European realities are rendered in fictional form by women writers from region. P/NP or letter grading.

**125. Interwar Central European Prose (4)** (Formerly numbered 125.) (Same as European Languages and Transcultural Studies M125.) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative authors of 1920s and 1930s in translation. Special attention to relation between literature and historical and ethnic concerns. P/NP or letter grading.

**CM126. Cold-War Central European Culture (4)** (Formerly numbered C126.) (Same as European Languages and Transcultural Studies CM126.) Lecture, three hours. Examination of cold-war Central European culture through prism of prose fiction, essays, and film from 1947 to 1989. Analysis of strategies of Polish, Czech, Hungarian, and East German writers as articulation of tensions, contradictions, and compromises informing communist rule in central and eastern Europe, with focus on culture as node of resistance as well as accommodation to communist system. Concurrently scheduled with course CM226. P/NP or letter grading.

**127. Central European Culture after Fall of Communism (4)** Lecture, three hours. Examination of Central and East European culture through literature, film, visual arts, music, and other cultural artifacts from 1989 to present. Analysis of Polish, Czech, Slovak, Romanian, Hungarian, former Yugoslav, and East German writers, essayists, filmmakers, musicians, visual artists, and graphic novelists in order to reflect on nature of political and societal changes after fall of communism. P/NP or letter grading.

**130. Balkan Cultures in Film and Literature (4)** Lecture, three hours. Examination of cultural and linguistic issues in Western Balkans (Bosnia, Croatia, Serbia) through literature, film, music, and visual arts. Examination of interaction of politics and culture (language, religion, literature, film, and mass media)

before and after breakup of Yugoslavia by analyzing movies, literature, and music. All texts and films are in English translation. No prior knowledge of Western Balkan languages is required. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Central and East European Studies (4)** Seminar, three hours. Study and discussion of specialized issues and approaches in history, structure, and thematics of one or more literary traditions of central and eastern Europe. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

## Graduate

**CM226. Cold-War Central European Culture (4)** (Formerly numbered C226.) (Same as European Languages and Transcultural Studies CM226.) Lecture, three hours. Examination of cold-war Central European culture through prism of prose fiction, essays, and film from 1947 to 1989. Analysis of strategies of Polish, Czech, Hungarian, and East German writers as articulation of tensions, contradictions, and compromises informing communist rule in central and eastern Europe, with focus on culture as node of resistance as well as accommodation to communist system. Concurrently scheduled with course CM126. S/U or letter grading.

## Czech Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Introduction to Czech Language and Culture (5)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Beginning Czech language course with strong cultural component. P/NP or letter grading.

**101B. Introduction to Czech Language and Culture (5)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Beginning Czech language course with strong cultural component. P/NP or letter grading.

**101C. Introduction to Czech Language and Culture (5)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Beginning Czech language course with strong cultural component. P/NP or letter grading.

**102A. Advanced Czech (4)** Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

**102B. Advanced Czech (4)** Lecture, three hours. Recommended preparation: course 102A (may be waived with consent of instructor). P/NP or letter grading.

**102C. Advanced Czech (4)** Lecture, three hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). P/NP or letter grading.

**103. Intensive Elementary Czech (12)** Lecture, 25 hours. Intensive basic course in Czech equivalent to courses 101A, 101B, 101C. Offered in summer only. P/NP or letter grading.

**104. Intensive Advanced Czech (12)** Lecture, 25 hours. Intensive advanced course in Czech equivalent to courses 102A, 102B, 102C. Offered in summer only. P/NP or letter grading.

**155. Survey of Czech Literature from Middle Ages to Present (4)** Lecture, three hours. Lectures and readings in English. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced

conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Czech (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Hungarian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Hungarian (4)** Lecture, three to four hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Introduction to grammar; instruction in speaking, listening, reading, and writing. P/NP or letter grading.

**101B. Elementary Hungarian (4)** Lecture, three to four hours. Recommended preparation: course 101A (may be waived with consent of instructor). Introduction to grammar; instruction in speaking, listening, reading, and writing. P/NP or letter grading.

**101C. Elementary Hungarian (4)** Lecture, three to four hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Introduction to grammar; instruction in speaking, listening, reading, and writing. P/NP or letter grading.

**102A. Advanced Hungarian (4)** Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

**102B. Advanced Hungarian (4)** Lecture, three hours. Recommended preparation: course 102A (may be waived with consent of instructor). P/NP or letter grading.

**102C. Advanced Hungarian (4)** Lecture, three hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). P/NP or letter grading.

**121. Survey of Hungarian Literature in Translation (4)** Lecture, three hours. Designed for students in general and comparative literature, as well as students interested in Finno-Ugric studies. Survey of main trends and contacts with other literatures. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: two years of Hungarian and/or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Hungarian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in Hungarian (2 to 4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Lithuanian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Lithuanian (4)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic course in Lithuanian language. P/NP or letter grading.

**101B. Elementary Lithuanian (4)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Basic course in Lithuanian language. P/NP or letter grading.

**101C. Elementary Lithuanian (4)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Basic course in Lithuanian language. P/NP or letter grading.

**102A. Advanced Lithuanian (4)** Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. Review and reinforcement of grammar introduced in first year of study, expansion of vocabulary, further training in written and oral expression. P/NP or letter grading.

**102B. Advanced Lithuanian (4)** Lecture, three hours. Recommended preparation: course 102A (may be waived with consent of instructor). Review and reinforcement of grammar introduced in first year of study, expansion of vocabulary, further training in written and oral expression. P/NP or letter grading.

**102C. Advanced Lithuanian (4)** Lecture, three hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). Review and reinforcement of grammar introduced in first year of study, expansion of vocabulary, further training in written and oral expression. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Polish Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Polish (5)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic course in Polish language. P/NP or letter grading.

**101B. Elementary Polish (5)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Basic course in Polish language. P/NP or letter grading.

**101C. Elementary Polish (5)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Basic course in Polish language. P/NP or letter grading.

**102A. Advanced Polish (4)** Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

**102B. Advanced Polish (4)** Lecture, three hours. Recommended preparation: course 102A (may be waived with consent of instructor). P/NP or letter grading.

**102C. Advanced Polish (4)** Lecture, three hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). P/NP or letter grading.

**152A. Survey of Polish Literature: From the Middle Ages to Neoclassicism (4)** Lecture, three hours. Lectures and readings in English. Letter grading.

**152B. Survey of Polish Literature: Reimagining a Nation (4)** Lecture, three hours. Lectures and readings in English. Readings in 19th-century Polish literature and culture. Letter grading.

**152C. Survey of Polish Literature: Dreaming, Mocking, and Writing as if (4)** Lecture, three hours. Lectures and readings in English. Readings in modern Polish literature and culture. Letter grading.

**C180. Variable Topics in Polish Literature (4)** Seminar, three hours. Reading knowledge of Polish recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C280. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: two years of Polish and/or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conver-

sation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Polish (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**C280. Variable Topics in Polish Literature (4)** Seminar, three hours. Reading knowledge of Polish recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C180. S/U or letter grading.

## Romanian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Introduction to Romanian Civilization (4)** Lecture, three hours. Introductory survey of social and cultural institutions of Romanian people and their historical background. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Romanian (5)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic course in Romanian language. P/NP or letter grading.

**101B. Elementary Romanian (5)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Basic course in Romanian language. P/NP or letter grading.

**101C. Elementary Romanian (5)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Basic course in Romanian language. P/NP or letter grading.

**102A. Advanced Romanian (5)** Lecture, five hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. Differences between oral and written discourse, expansion of students' general and academic vocabulary, and increase of range of grammatical structures for use in speaking and writing. Cultural information to be included in readings. P/NP or letter grading.

**102B. Advanced Romanian (5)** Lecture, five hours. Recommended preparation: course 102A (may be waived with consent of instructor). Differences between oral and written discourse, expansion of students' general and academic vocabulary, and increase of range of grammatical structures for use in speaking and writing. Cultural information to be included in readings. P/NP or letter grading.

**102C. Advanced Romanian (5)** Lecture, five hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). Differences between oral and written discourse, expansion of students' general and academic vocabulary, and increase of range of grammatical structures for use in speaking and writing. Cultural information to be included in readings. P/NP or letter grading.

**103. Intensive Elementary Romanian (12)** Lecture, 25 hours. Intensive basic course in Romanian equivalent to courses 101A, 101B, 101C. P/NP or letter grading.

**152. Survey of Romanian Literature (4)** Lecture, three hours. Lectures and readings in English. Survey of Romanian literature from Middle Ages to present. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: ad-

vanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Romanian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Russian Courses

### Lower Division

**1. Elementary Russian (5)** Recitation, five hours; laboratory, one hour. P/NP or letter grading.

**2. Elementary Russian (5)** Lecture, five hours; laboratory, one hour. Requisite: course 1 or Russian placement test. P/NP or letter grading.

**3. Elementary Russian (5)** Lecture, five hours; laboratory, one hour. Requisite: course 2 or Russian placement test. P/NP or letter grading.

**4. Intermediate Russian (5)** Lecture, five hours; laboratory, one hour. Requisite: course 3 or Russian placement test. P/NP or letter grading.

**5. Intermediate Russian (5)** Lecture, five hours; laboratory, one hour. Requisite: course 4 or Russian placement test. P/NP or letter grading.

**6. Intermediate Russian (5)** Lecture, five hours; laboratory, one hour. Requisite: course 5 or Russian placement test. P/NP or letter grading.

**10. Intensive Elementary Russian (12)** Lecture, 19 hours. Intensive basic course in Russian language equivalent to courses 1, 2, 3. P/NP or letter grading.

**15A. Accelerated Elementary Russian (8)** Recitation, five hours; laboratory, two hours. Material of first-year Russian course to be covered in two terms, with extensive use of language laboratory and the Russian Room. P/NP or letter grading.

**15B. Accelerated Elementary Russian (7)** Recitation, five hours; laboratory, two hours. Material of first-year Russian course to be covered in two terms, with extensive use of language laboratory and the Russian Room. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.



**20. Intensive Intermediate Russian (12)** Lecture, 19 hours. Intermediate instruction in reading, writing, and speaking Russian equivalent to courses 4, 5, 6. P/NP or letter grading.

**25. Great Russian Novel (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 25W. Designed for nonmajors. Knowledge of Russian not required. Study of major works by great 19th-century Russian novelists. P/NP or letter grading.

**25W. Great Russian Novel (5)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course 25. Designed for nonmajors. Knowledge of Russian not required. Study of major works by great 19th-century Russian novelists. Satisfies Writing II requirement. Letter grading.

**30. Russian Literature and World Cinema (4)** Lecture, three hours; discussion, one hour. Examination of Russian literary masterpieces and their screen adaptations in various national cinematic traditions, with focus on problems of perception and misperception arising when literature is translated into cinema, and one national culture is viewed through the eyes of another. P/NP or letter grading.

**31. Introduction to Russian Film (5)** Lecture, three hours; discussion, one hour; film screening, two hours. Key works, names, events, and concepts of Russian cinematic tradition. Development of skills in analyzing and interpreting films and acquisition of critical terminology of film studies. How film form and aesthetics are conditioned by technology, ideology, economics, theory, tradition, and culture. How cinema in Russia has created and contested narratives of history and identity, how cinema has served interests of state, and how it has defied them. P/NP or letter grading.

**32. Russia and Asia: Cultural Dialogues (5)** Lecture, three hours; discussion, one hour. Since end of Soviet Union, cultural and political flux within non-Christian lands neighboring Russia has increased dramatically. Given radical rejection of Russian heritage in most former Soviet territories, key distinctions in humanities have become unclear, including fundamental confusion between limits of Slavic and Near Eastern studies. Examination of relation of Russia's culture to its borders: Caucasus, Central Asia, China, and Japan. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90A. Introduction to Russian Civilization (5)** Lecture, three hours; discussion, one hour. Introduction to Russian culture and society from earliest times to 1917. P/NP or letter grading.

**90B. Russian Civilization in 20th Century (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 90BW. Survey of literature, theater, cinema, television, press, music, and arts. Emphasis on contemporary period, with constant reference to Russian and early Soviet antecedents. P/NP or letter grading.

**90BW. Russian Civilization in 20th Century (5)** Lecture, three hours; discussion, one hour. Requisite: English Composition 3. Not open for credit to students with credit for course 90B. Survey of literature, theater, cinema, television, press, music, and arts. Emphasis on contemporary period, with constant reference to Russian and early Soviet antecedents. Weekly discussions focus on varied approaches to writing addressing class topics. Five short papers required. Satisfies Writing II requirement. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Literacy in Russian (4)** Lecture, three hours. Course 100A or Russian placement test is enforced requisite to 100B; course 100B or Russian placement test is enforced requisite to 100C. For students who speak Russian but

have difficulty reading and writing. Focus on improving reading and writing skills, increasing vocabulary, and developing speaking skills required for academic discourse. P/NP or letter grading.

**100B. Literacy in Russian (4)** Lecture, three hours. Enforced requisite: course 100A or Russian placement test. For students who speak Russian but have difficulty reading and writing. Focus on improving reading and writing skills, increasing vocabulary, and developing speaking skills required for academic discourse. P/NP or letter grading.

**100C. Literacy in Russian (4)** Lecture, three hours. Enforced requisite: course 100B or Russian placement test. For students who speak Russian but have difficulty reading and writing. Focus on improving reading and writing skills, increasing vocabulary, and developing speaking skills required for academic discourse. P/NP or letter grading.

**101A. Third-Year Russian (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 6 or Russian placement test. Course 101A or Russian placement test is enforced requisite to 101B; course 101B or Russian placement test is enforced requisite to 101C. Advanced grammar, reading, and conversation, with strong multimedia component. P/NP or letter grading.

**101B. Third-Year Russian (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 101A or Russian placement test. Advanced grammar, reading, and conversation, with strong multimedia component. P/NP or letter grading.

**101C. Third-Year Russian (5)** Lecture, three hours; discussion, two hours. Enforced requisite: course 101B or Russian placement test. Advanced grammar, reading, and conversation, with strong multimedia component. P/NP or letter grading.

**102A. Topics in Advanced/Superior Russian (4)** Lecture, three hours. Enforced requisite: course 101C or Russian placement test. Course 102A or Russian placement test is enforced requisite to 102B; course 102B or Russian placement test is enforced requisite to 102C. Discussion and composition, with emphasis on vocabulary development and review of selected grammar topics. Readings in fiction and nonfiction, films, and videos, and use of Internet. May be taken independently and may be repeated for credit. P/NP or letter grading.

**102B. Topics in Advanced/Superior Russian (4)** Lecture, three hours. Enforced requisite: course 102A or Russian placement test. Discussion and composition, with emphasis on vocabulary development and review of selected grammar topics. Readings in fiction and nonfiction, films, and videos, and use of Internet. May be taken independently and may be repeated for credit. P/NP or letter grading.

**102C. Topics in Advanced/Superior Russian (4)** Lecture, three hours. Enforced requisite: course 102B or Russian placement test. Discussion and composition, with emphasis on vocabulary development and review of selected grammar topics. Readings in fiction and nonfiction, films, and videos, and use of Internet. May be taken independently and may be repeated for credit. P/NP or letter grading.

**103A. Russian for Native and Near-Native Speakers: Russian National Identity (4)** Lecture, three hours. Course 103A is not requisite to 103B, which is not requisite to 103C. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. Readings in literature, philosophy, criticism, film. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**103B. Russian for Native and Near-Native Speakers: Literature and Film (4)** Lecture, three hours. Course 103A is not requisite to 103B. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. Film adaptations of Russian literature. Readings and screenings. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**103C. Russian for Native and Near-Native Speakers: Special Topics (4)** Lecture, three hours. Course 103B is not requisite to 103C. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**107A. Russian for Social and Cultural Studies (4)** Lecture, three hours. Recommended preparation: third-year Russian. Lectures and readings in Russian. Exploration of texts and media in social sciences and culture, with emphasis on press, television, and Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

**107B. Russian for Social and Cultural Studies (4)** Lecture, three hours. Recommended preparation: third-year Russian. Lectures and readings in Russian. Exploration of texts and media in social sciences and culture, with emphasis on press, television, and Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

**107C. Russian for Social and Cultural Studies (4)** Lecture, three hours. Recommended preparation: third-year Russian. Lectures and readings in Russian. Exploration of texts and media in social sciences and culture, with emphasis on press, television, and Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

**108. Russian for Business: Language and Culture (4)** Lecture, three hours. Discussion of economics and business in Russia, language of advertising, business and official correspondence. P/NP or letter grading.

**110. Russian Flagship Program Abroad: Intensive Advanced Russian (12)** Lecture, 19 hours. Enforced requisites: courses 101A, 101B, 101C or equivalent coursework as determined by department. Taught in Russian. Designed for students with high proficiency in Russian. Intensive advanced seven-week course in Russian language covering reading, writing, speaking, listening, and grammar. Lectures on Russian history also included. Opportunity to interact with Russian speakers outside of class and serve as volunteers. Part of Russian Flagship Program Abroad. May not be repeated for credit. Offered in summer only. Letter grading.

**111A. Russian Flagship Program Abroad: Superior Russian (5)** Lecture, three hours. Enforced requisite: course 110 or equivalent coursework as determined by department. Course 111A is enforced requisite to 111B, which is enforced requisite to 111C. Taught in Russian. Designed for students with advanced proficiency. Development of skills in Russian phonetics, conversation, and grammar. Acquisition of advanced syntactical structures and expansion of lexical repertoire. Emphasis on formal interpersonal and presentational modes. Letter grading.

**111B. Russian Flagship Program Abroad: Superior Russian (5)** Lecture, three hours. Enforced requisite: course 111A or equivalent coursework as determined by department. Taught in Russian. Designed for students with advanced proficiency. Development of skills in Russian phonetics, conversation, and grammar. Acquisition of advanced syntactical structures and expansion of lexical repertoire. Emphasis on formal interpersonal and presentational modes. Letter grading.

**111C. Russian Flagship Program Abroad: Superior Russian (5)** Lecture, three hours. Enforced requisite: course 111B or equivalent coursework as determined by department. Taught in Russian. Designed for students with advanced proficiency. Development of skills in Russian phonetics, conversation, and grammar. Acquisition of advanced syntactical structures and expansion of lexical repertoire. Emphasis on formal interpersonal and presentational modes. Letter grading.

**112A. Russian Flagship Program Abroad: Russian Literature and Culture (4)** Lecture, three hours. Enforced requisite: course 110 or equivalent coursework as determined by department. Course 112A is enforced requisite to 112B, which is enforced requisite to 112C. Taught in Russian. Critical reading, analysis, and discussion of Russian literature, with exposure to Russian cultural and intellectual norms. Readings and essays, with emphasis on formal and academic writing. Letter grading.

**112B. Russian Flagship Program Abroad: Russian Literature and Culture (4)** Lecture, three hours. Enforced requisite: course 112A or equivalent coursework as determined by department. Taught in Russian. Critical reading, analysis, and discussion of Russian literature, with exposure to Russian cultural and intellectual norms. Readings and essays, with emphasis on formal and academic writing. Letter grading.

**112C. Russian Flagship Program Abroad: Russian Literature and Culture (4)** Lecture, three hours. Enforced requisite: course 112B or equivalent coursework as determined by department. Taught in Russian. Critical reading, analysis, and discussion of Russian literature, with exposure to Russian cultural and intellectual norms. Readings and essays, with emphasis on formal and academic writing. Letter grading.

**113A. Russian Flagship Program Abroad: Professional and Academic Russian and Experiential Learning (4)** Lecture, three hours. Enforced requisite: course 110 or equivalent coursework as determined by department. Course 113A is enforced requisite to 113B, which is enforced requisite to 113C. Taught in Russian. Use of discourse practices (speaking, listening, reading, and writing) to participate effectively in discussions of professional topics and situations outside of course. Opportunity to communicate in Russian in authentic contexts by participating in courses with local students, providing service to community, or interning in one business. Letter grading.

**113B. Russian Flagship Program Abroad: Professional and Academic Russian and Experiential Learning (4)** Lecture, three hours. Enforced requisite: course 113A or equivalent coursework as determined by department. Taught in Russian. Use of discourse practices (speaking, listening, reading, and writing) to participate effectively in discussions of professional topics and situations outside of course. Opportunity to communicate in Russian in authentic contexts by participating in courses with local students, providing service to community, or interning in one business. Letter grading.

**113C. Russian Flagship Program Abroad: Professional and Academic Russian and Experiential Learning (4)** Lecture, three hours. Enforced requisite: course 113B or equivalent coursework as determined by department. Taught in Russian. Use of discourse practices (speaking, listening, reading, and writing) to participate effectively in discussions of professional topics and situations outside of course. Opportunity to communicate in Russian in authentic contexts by participating in courses with local students, providing service to community, or interning in one business. Letter grading.

**118. History of Russia, Origins to Rise of Muscovy (4)** (Same as History M127A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Kievan Rus' and its culture, Appanage principalities and towns; Mongol invasion; unification of Russian state by Muscovy, Autocracy and its Servitors; serfdom. P/NP or letter grading.

**119. Golden Age and Great Realists (4)** Lecture, three hours. Designed for juniors/seniors. Russian majors are advised to take this course in their sophomore year. Lectures and readings in English. Survey of 19th-century Russian literature (Pushkin, Gogol, Tolstoy, Dostoevsky, Chekhov) in its cultural, political, and social contexts. P/NP or letter grading.

**120. Literature and Revolution (4)** Lecture, three hours. Designed for juniors/seniors. Russian majors are advised to take this course in their sophomore year. Lectures and readings in English. Major works of the 20th century (Belyi, Pasternak, Bulgakov, Solzhenitsyn, and others) from prerevolutionary avant-garde to the present. P/NP or letter grading.

**121. Russian Pop Culture (5)** Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Overview of Russian popular culture today, with examination of status of Russia's classic(al) traditions for artists and audiences working in modern Russia. Death of one tradition and attempts at creation of another lead away from written word into neighboring forms of expression, primarily visual. Consideration of battles of modern storytelling with cinema, television, animation, music videos, and Internet. Letter grading.

**122. Siberia (5)** Lecture, three hours. Introductory survey in which current cultural and ecological issues are situated in their geographical and historical background, including analysis of Siberian human geography before first contact with European colonizers and development of modes of interaction among different cultural groups. Reading in English of selection of literary works by well-known 20th-century Siberian writers whose texts serve as locus for closer examination of Siberian regional literary culture and ecological network within which it exists. Letter grading.

**C124C. Studies in Russian Literature: Chekhov (4)** Lecture, three hours. Lectures and readings in English. Survey of short stories, novellas, and major plays (The Seagull, Uncle Vanya, Three Sisters, The Cherry Orchard), with discussion of Russian and American productions. Concurrently scheduled with course C224C. P/NP or letter grading.

**C124D. Studies in Russian Literature: Dostoevsky (4)** Lecture, three hours. Lectures and readings in English. In-depth reading of major fictional works such as Crime and Punishment, Notes from the Underground, and The Brothers Karamazov. Concurrently scheduled with course C224D. P/NP or letter grading.

**CM124G. Studies in Russian Literature: Gogol (4)** (Formerly numbered C124G.) (Same as Ukrainian CM124G.) Lecture, three hours. Lectures and readings in English. Short stories, novel Dead Souls, and selected plays. Concurrently scheduled with course CM224G. P/NP or letter grading.

**C124N. Studies in Russian Literature: Nabokov (4)** Lecture, three hours. Lectures and readings in English. Russian novelist (The Gift), American novelist (Invitation to a Beheading), autobiographer (Invitation to a Beheading), and critic. Concurrently scheduled with course C277. P/NP or letter grading.

**C124P. Studies in Russian Literature: Pushkin (4)** Lecture, three hours. Lectures and readings in English. Major works in all genres, including lyric poetry, narrative poems, plays, prose fiction, and selected letters. Concurrently scheduled with course C224P. P/NP or letter grading.

**C124T. Studies in Russian Literature: Tolstoy (4)** Lecture, three hours. Lectures and readings in English. Early and late stories and novellas, excerpts from the diaries and one major novel such as War and Peace or Anna Karenina. Concurrently scheduled with course C224T. P/NP or letter grading.

**125. Russian Novel in Its European Setting (4)** Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Emphasis on 19th- and 20th-century novelists.

**126. Russian Theater: Plays and Performance (4)** Lecture, three hours. Lectures and readings in English. Major Russian plays and living tradition of performance from classical to avant-garde. P/NP or letter grading.

**127. Women in Russian Literature (4)** (Same as Gender Studies M127.) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to alternative tradition of women's writings in Russia and

Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers. P/NP or letter grading.

**128. Russian Science Fiction (4)** Lecture, three hours. Readings in English. Introduction to Russian science fiction in the 20th century. Emphasis on function of science fiction in development of Russian culture before and after the October Revolution. P/NP or letter grading.

**129. Animation and Music Video (5)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Lectures and readings in English. Humanities have recently passed through so-called visual turn: traditional emphases on language(s) in field have been reconsidered in light of society's increasingly visual workings. New attitude toward our own changing culture (i.e., toward its future) has equal value if applied retrospectively to multiple cultures of one erstwhile empire. In territory where many tongues or traditions needed to be ironed out, visual often plays special role in social cohesion. Because of past politics and today's profit-driven events, small fickle forms of visual narrative reflect change and social chance much better than ponderous grandeur of feature-length cinema. Letter grading.

**130A. Russian Poetry: Introduction to Analysis of Russian Poetry (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. Role of biography, cultural subtexts, rhetoric, and form in interpreting poetic texts. May be repeated for credit with topic and/or instructor change.

**130B. Russian Poetry: Poetry of Russian Neoclassicism, Romanticism, and Realism (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. Major works of late 18th and 19th centuries in their historical and cultural contexts. May be repeated for credit with topic and/or instructor change.

**130C. Russian Poetry: Russian Poetry in the 20th Century (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. Major poetic schools from early modernism (symbolism, futurism, acmeism) to contemporary avant-garde. May be repeated for credit with topic and/or instructor change.

**131. History of Russian Cinema (4)** Lecture, three hours. Overview of most popular art form in world's largest nation to show how cinema struggled under incipient capitalism in Russia, how moviemaking on other side of world departed from path marked out by Hollywood and London, how films operate as form of nationwide persuasion, relationship between word and image in those acts of persuasion, how even frightening dogma cannot escape importance of audience desire(s), different forms of social existence as refuge from both capitalism and communism, and what values of world's biggest country are. Role of language in self-definition. Is selfhood verbal or visual matter? P/NP or letter grading.

**132. Comparative Media Studies (4)** (Same as Comparative Literature M132.) Lecture, three hours. History, form, and function of various media. Grounded in political and commercial experience of eastern Europe, comparative investigation of media technologies, today's burgeoning markets, and yesterday's tragic abuses. Development of media form(s) and content across various times, places, and cultures, with special attention to Slavic phenomena. Letter grading.

**140A. Russian Prose Fiction: Introduction to Analysis of Russian Narrative Prose (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. Close analysis of genre, narrative, and rhetorical strategies and interplay of literature, history, and culture. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**140B. Russian Prose Fiction: Russian Romantic Prose (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. Karamzin, Pushkin, Gogol, and others. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**140C. Russian Prose Fiction: Great Realists (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. Dostoevsky, Tolstoy, and others. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**140D. Russian Prose Fiction: 20th-Century Modernism (4)** Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

**145. Literary Texts and Literary Languages: Strategies of Analysis and Digital Tools (4)** (Same as Digital Humanities M145.) Lecture, three hours. Lectures and readings in English. Non-obligatory additional materials in Russian. Formal, quantitative, and computational methods for analysis of poetry and prose. Digital tools for analysis. P/NP or letter grading.

**150. Russian Folk Literature (4)** Lecture, four hours. Lectures and readings in Russian. P/NP or letter grading.

**C170. Russian Folklore (3 to 5)** Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. Concurrently scheduled with course C240. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Enforced prerequisite: course 102C or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Russian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Russian placement test. Tutorial and guided independent study of advanced Russian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Russian Literature (4)** Seminar, three hours. Requisite: course 6. Reading and discussion of selected authors; culminating seminar paper required. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

## Graduate

**201A. Russian: Vocabulary, Pronunciation, Style (4)** Lecture, three hours. Requisite: course 102C. Conducted in Russian. Reading and analysis of texts with focus on vocabulary, pronunciation, and style, respectively, in three consecutive terms. S/U or letter grading.

**201B. Russian: Vocabulary, Pronunciation, Style (4)** Lecture, three hours. Requisite: course 102C. Conducted in Russian. Reading and analysis of texts with focus on vocabulary, pronunciation, and style, respectively, in three consecutive terms. S/U or letter grading.

**201C. Russian: Vocabulary, Pronunciation, Style (4)** Lecture, three hours. Requisite: course 102C. Conducted in Russian. Reading and analysis of texts with focus on vocabulary, pronunciation, and style, respectively, in three consecutive terms. S/U or letter grading.

**204. Introduction to History of Russian Literary Language (4)** Lecture, three hours. Requisites: course 220A, Slavic 201. Required for MA (linguistics) and PhD (literature). Evolution of literary Russian from 11th to 20th century. Analysis of texts. S/U or letter grading.

**211A. Literature of Medieval Rus' (4)** Lecture, three hours. Required for MA (literature). Survey of the literature from its beginning through the Kievan and Muscovite periods up to end of the 17th century.

**211B. 18th-Century Russian Literature (4)** Lecture, three hours. Required for MA (literature). Lectures and readings in major and secondary writers. Analysis of related literary works.

**212A. 19th-Century Russian Literature: Golden Age (4)** Lecture, three hours. Required for MA (literature). Survey of major literary movements and schools following demise of neoclassicism: sentimental school, early and late Romanticism, and beginnings of natural school. Discussion of representative works of Karamzin, Zhukovsky, Batyushkov, Pushkin, Baratynsky, Lermontov, Gogol. S/U or letter grading.

**212B. 19th-Century Russian Literature: Age of Realism (4)** Lecture, three hours. Survey devoted to emergence of critical and psychological realism, beginning with early works of Turgenev, Goncharov, and Dostoevsky, moving to major novels of Tolstoy, Dostoevsky, and Saltykov-Shchedrin, and concluding with works of the presymbolist period, especially short stories of Chekhov. Course 212B or 292B is required for MA (literature). S/U or letter grading.

**213A. 20th-Century Russian Literature, 1890 to 1929 (4)** Lecture, three hours. Required for MA (literature). Lectures and readings in major literary trends of modernist period, such as decadence, symbolism, futurism, acmeism, and ornamental school. Analysis of representative works by Blok, Belyi, Khlebnikov, Pasternak, Platonov, and others. S/U or letter grading.

**213B. 20th-Century Russian Literature, 1930 to 1989 (4)** Lecture, three hours. Required for MA (literature). Lectures and readings in major literary trends, including socialist realism, The Thaw, and second- and third-wave emigration. S/U or letter grading.

**214. Contemporary Russian Literature (4)** Lecture, three hours. Requisites: courses 213A, 213B. Required for PhD (literature). Close readings in selected texts of poetry and prose, metropolitan and émigré, of recent vintage. May be repeated for credit. Letter grading.

**220A. Structure of Modern Russian (4)** Lecture, three hours. Required for MA (literature, linguistics). Survey of basic concepts and categories (graphics, phonetics, phonology, morphology, syntax, discourse). S/U or letter grading.

**220B. Structure of Modern Russian (4)** Lecture, three hours. Requisite: course 220A. Required for MA (linguistics). Selected problems and approaches in structure of Russian. S/U or letter grading.

**C224C. Studies in Russian Literature: Chekhov (4)** Lecture, three hours. Lectures and readings in English. Survey of short stories, novellas, and major plays (The Seagull, Uncle Vanya, Three Sisters, The Cherry Orchard), with discussion of Russian and American productions. Concurrently scheduled with course C124C. S/U or letter grading.

**C224D. Studies in Russian Literature: Dostoevsky (4)** Lecture, three hours. Lectures and readings in English. In-depth reading of major fictional works such as Crime and Punishment, Notes from the Underground, and The Brothers Karamazov. Concurrently scheduled with course C124D. S/U or letter grading.

**CM224G. Studies in Russian Literature: Gogol (4)** (Formerly numbered C224G.) (Same as Ukrainian CM224G.) Lecture, three hours. Lectures and readings in English. Short stories, novel Dead Souls, and selected plays. Concurrently scheduled with course CM124G. S/U or letter grading.

**C224P. Studies in Russian Literature: Pushkin (4)** Lecture, three hours. Lectures and readings in English. Major works in all genres, including lyric poetry, narrative poems, plays, prose fiction, and selected letters. Concurrently scheduled with course C124P. S/U or letter grading.

**C224T. Studies in Russian Literature: Tolstoy (4)** Lecture, three hours. Lectures and readings in English. Early and late stories and novellas, excerpts from the diaries and one major novel such as War and Peace or Anna Karenina. Concurrently scheduled with course C124T. S/U or letter grading.

**C240. Russian Folklore. (3 to 5)** Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. Concurrently scheduled with course C170. S/U or letter grading.

**264. History of the Russian Literary Language (4)** Lecture, three hours. Requisites: course 204, Slavic 201. Evolution of literary Russian from the 11th to 20th century. Lectures and analysis of texts.

**270. Russian Poetics (4)** Lecture, three hours. Introduction to technical study of Russian poetics and versification, with attention to metrics, stanza forms, rhyme, and development of various verse types from the 18th into the 20th century.

**C277. Studies in Russian Literature: Nabokov (4)** Lecture, three hours. Lectures and readings in English. Russian novelist (The Gift), American novelist (Invitation to a Beheading), autobiographer (Invitation to a Beheading), and critic. Concurrently scheduled with course C124N. S/U or letter grading.

**292. Seminar: 19th-Century Russian Literature (4)** Seminar, three hours. Requisites: courses 212A, 212B. Selected authors and works from 19th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

**293. Seminar: 20th-Century Russian Literature (4)** Seminar, three hours. Requisites: course 213A. Selected authors and works from 20th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser. S/U or letter grading.

**294. Seminar: Russian Literary Criticism (4)** Seminar, three hours. Requisites: courses 211B, 212A, 212B, 213A. Detailed study of specific school of literary criticism, single literary critic, or period in Russian literary history as reflected in literary criticism. Simultaneous or similar phenomena in literary criticism in West. May be repeated for credit with consent of instructor and graduate adviser. S/U or letter grading.

**296. Seminar: History of Russian Culture (4)** Discussion, three hours. Reading and discussion on selected topics in history of Russian culture.

## Slavic Courses

### Lower Division

**5. Introduction to Eurasia (5)** Lecture, three hours; discussion, one hour (when scheduled). Interdisciplinary survey of Eurasia. Introduction to history, culture, and geography of diverse area that is often vaguely understood as not quite Europe and not quite Asia, yet both at the same time home to several of history's most powerful overland empires, as well as its most notorious figures: Genghis Khan, Alexander the Great, Ivan the Terrible, and others. Ex-

ploration of contemporary issues in modern states of Russia, China, Mongolia, Kazakhstan, Uzbekistan, Tajikistan, Iran, and Azerbaijan. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**20. Visible Language: Study of Writing (5)** (Same as Asian M20, Indo-European Studies M20, Near Eastern Languages M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium BC. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium BC and how it compares to other modern writing systems. P/NP or letter grading.

**40. Christianities East and West (5)** (Same as Religion M40.) Lecture, three hours; discussion, one hour. Survey of three major historical branches of Christianity—Eastern and Oriental Orthodoxy, Roman Catholicism, and Protestantism, contrasting how history, dogma, culture, and community structures develop in those three traditions. P/NP or letter grading.

**87. Languages of Los Angeles (5)** Lecture, three hours; discussion, one hour. Comprehensive interdisciplinary investigation of Los Angeles as multilingual and multicultural metropolis. Review and analysis of features of major linguistic communities in Los Angeles area (Armenian, Cantonese, Japanese, Korean, Mandarin, Russian, Spanish, and others), with particular attention to social and cultural factors that play role in maintenance of language used in any given ethnic group. Familiarization with discipline and methodology of urban linguistics as part of urban geographical studies and as tool for investigating growing linguistic and cultural diversity of America's large cities. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**90. Introduction to Slavic Civilization (5)** Lecture, three hours; discussion, one hour. Introductory survey of social and cultural institutions of Slavic peoples and their historical background. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**CM114. Teaching and Learning of Heritage Languages (4)** (Same as Asian CM124 and Near Eastern Languages CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM214. P/NP or letter grading.

**188A. Introduction to Eurasia (2)** Lecture, 90 minutes. Experimental or temporary courses in East European and Eurasian studies, such as those taught by resident or visiting faculty members, introducing less commonly taught Slavic, East European or Eurasian language. May be repeated for credit with topic change. P/NP or letter grading.

**188B. Languages of Eastern Europe and Eurasia (2)** Lecture or tutorial, 90 minutes. Program-sponsored experimental or temporary courses, such as those taught by resident or visiting faculty members, introducing less commonly taught Slavic, East European or Eurasian language. May be repeated for credit with change in language or language level. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191TA. Senior Capstone Thesis in Slavic Languages and Literatures (2)** Seminar, three hours. Limited to senior departmental majors. Planning and completion of senior capstone thesis. Introduction to research methods and presentation skills; use of student target language for research required. Verbal and written presentations required. Letter grading.

**191TB. Senior Capstone Thesis in Slavic Languages and Literatures (2)** Seminar, three hours. Enforced prerequisite: course 191TA. Limited to senior departmental majors. Editing and completion of senior capstone thesis. Use of student target language for research required. Letter grading.

**191TC. Senior Capstone Thesis in Slavic Languages and Literatures (2)** Seminar, three hours. Enforced prerequisite: course 191TB. Limited to senior departmental majors. Editing and completion of senior capstone thesis. Use of student target language for research required. Letter grading.

**197. Individual Studies in Slavic Languages and Literatures. (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

**198A. Honors Research in Slavic, East European, and Eurasian Languages and Cultures (4)** Tutorial, three hours. Limited to senior departmental honors program students. Development of research bibliography and survey of literature in field of Slavic, East European, and Eurasian languages and cultures. Topics chosen through consultation with faculty mentor. Students meet regularly with faculty adviser to report on progress and discuss readings. Individual contract required. Letter grading.

**198B. Honors Research in Slavic, East European, and Eurasian Languages and Cultures (4)** Tutorial, three hours. Prerequisite: course 198A. Limited to senior departmental honors program students. Research and writing field of Slavic, East European, and Eurasian languages and cultures under direct supervision of faculty mentor. Topics chosen through consultation with faculty mentor. Students meet regularly with faculty adviser to report on their research, discuss drafts of thesis chapters, and revise writing. Individual contract required. Letter grading.

**198C. Honors Research in Slavic, East European, and Eurasian Languages and Cultures (4)** Tutorial, three hours. Requisites: courses 198A, 198B. Limited to senior departmental honors program students. Completion of honors thesis in field of Slavic, East European, and Eurasian languages and cultures. Topics chosen through consultation with faculty mentor. Students meet regularly with faculty adviser to share drafts and revise writing. Thesis must be presented at University of California Undergraduate Conference on Slavic and East/Central European Studies. Final paper submitted to faculty adviser for grading and honors evaluation. Individual contract required. Letter grading.

**199. Directed Research in Slavic Languages and LiteratureS. (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Literary Proseminar (4)** Seminar, three hours. Required for MA (literature). Designed to prepare incoming graduate students for scholarly work by introducing them to resources (departmental, intramural, and extramural), methodologies, and techniques for analysis of literary materials and cultural studies. Letter grading.

**200B. Proseminar: Slavic Linguistics (4)** Seminar, three hours. Required for MA (linguistics). Introduction to synchronic and diachronic study of Slavic languages and to research tools and methodologies associated with Slavic linguistics. S/U or letter grading.

**201. Introduction to Church Slavic (4)** Lecture, three hours. Required for MA (linguistics, literature). Introduction to alphabet, phonology, and grammar; readings from Bible and other church Slavic texts (East Slavic recension). S/U or letter grading.

**202. Introduction to Comparative Slavic Linguistics (4)** Lecture, three hours. Requisite: course 201. Required for MA (linguistics). Introduction to comparative phonology and grammar of Slavic languages.

**CM214. Teaching and Learning of Heritage Languages (4)** (Same as Asian CM224 and Near Eastern Languages CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM114. S/U or letter grading.

**229. Introduction to Slavic Bibliography (2)** (Same as Information Studies M229C.) Introduction to Slavic and East European bibliography for the humanities and social sciences. Emphasis to be determined by requirements and background of enrolled students. Topics include relevant library terminology and concepts; survey of languages and transliteration systems; acquisition of Slavic and East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of online databases; compilation of bibliographies. S/U grading.

**230A. Topics in Comparative Slavic Literature: Middle Ages through Baroque (4)** Lecture, three hours. Recommended preparation: upper-division courses in Czech, Polish, Russian, and Yugoslav literatures. Two terms required for PhD (literature). May be repeated for credit with consent of instructor and graduate adviser.

**230B. Topics in Comparative Slavic Literature: Classicism through Romanticism (4)** Lecture, three hours. Recommended preparation: upper-division courses in Czech, Polish, Russian, and Yugoslav literatures. Two terms required for PhD (literature). May be repeated for credit with consent of instructor and graduate adviser.

**230C. Topics in Comparative Slavic Literature: Realism to Modernism (4)** Lecture, three hours. Recommended preparation: upper-division courses in Czech, Polish, Russian, and Yugoslav literatures. Two terms required for PhD (literature). May be repeated for credit with consent of instructor and graduate adviser.

**251. Introduction to Baltic Linguistics (4)** Lecture, three hours. Requisite: course 202. Introduction to Baltic linguistics, with special attention to relationship between Baltic and Slavic.

**495. Teaching Slavic Languages at College Level (4)** Seminar, 90 minutes; discussion, 90 minutes. Designed for graduate students. Theory and practice of language teaching. Discussion of contemporary language teaching methodology as well as problems of pedagogical grammar. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** S/U grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (2 to 8)** S/U grading.

**599. Research for PhD Dissertation (2 to 12)** S/U grading.

## Serbian/Croatian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Serbian/Croatian (5)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic course in Serbian/Croatian. P/NP or letter grading.

**101B. Elementary Serbian/Croatian (5)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Basic course in Serbian/Croatian. P/NP or letter grading.

**101C. Elementary Serbian/Croatian (5)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Basic course in Serbian/Croatian. P/NP or letter grading.

**102A. Advanced Serbian/Croatian (4)** Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. P/NP or letter grading.

**102B. Advanced Serbian/Croatian (4)** Lecture, three hours. Recommended preparation: course 102A (may be waived with consent of instructor). P/NP or letter grading.

**102C. Advanced Serbian/Croatian (4)** Lecture, three hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). P/NP or letter grading.

**103. Intensive Elementary Bosnian, Serbian, Croatian (12)** Lecture, 25 hours. Intensive basic course in Bosnian, Serbian, Croatian equivalent to courses 101A, 101B, 101C. P/NP or letter grading.

**154. South Slavic Literature (4)** Lecture, three hours. Lectures and readings in English. Survey of South Slavic literature from Middle Ages to the present. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Enforced requisite: course 102C or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Ser-

bian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Serbian/Croatian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Ukrainian Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101A. Elementary Ukrainian (5)** Lecture, five hours. Course 101A is recommended preparation for 101B, which is recommended preparation for 101C. Each course may be waived with consent of instructor. Basic course in Ukrainian language. P/NP or letter grading.

**101B. Elementary Ukrainian (5)** Lecture, five hours. Recommended preparation: course 101A (may be waived with consent of instructor). Basic course in Ukrainian language. P/NP or letter grading.

**101C. Elementary Ukrainian (5)** Lecture, five hours. Recommended preparation: courses 101A, 101B (may be waived with consent of instructor). Basic course in Ukrainian language. P/NP or letter grading.

**102A. Advanced Ukrainian (4)** Lecture, three hours. Recommended preparation: course 101C (may be waived with consent of instructor). Course 102A is recommended preparation for 102B, which is recommended preparation for 102C. Each course may be waived with consent of instructor. Development of advanced listening, speaking, reading, and writing skills. P/NP or letter grading.

**102B. Advanced Ukrainian (4)** Lecture, three hours. Recommended preparation: course 102A (may be waived with consent of instructor). Development of advanced listening, speaking, reading, and writing skills. P/NP or letter grading.

**102C. Advanced Ukrainian (4)** Lecture, three hours. Recommended preparation: courses 102A, 102B (may be waived with consent of instructor). Development of advanced listening, speaking, reading, and writing skills. P/NP or letter grading.

**CM124G. Studies in Russian Literature: Gogol (4)** (Same as Russian CM124G.) Lecture, three hours. Lectures and readings in English. Short stories, novel *Dead Souls*, and selected plays. Concurrently scheduled with course CM224G. P/NP or letter grading.

**152. Ukrainian Literature (4)** Lecture, three hours. Lectures and readings in English. Survey of writers, literary trends, and issues in Ukrainian literature from the late 18th century to the present. Special attention to works of such major figures as Kotlyarevsky, Shevchenko, Franko, Ukrainka, and Tykhyna.

**C180. Variable Topics in Ukrainian Literature (4)** Seminar, three hours. Reading knowledge of Ukrainian recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C280. P/NP or letter grading.

**187A. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: two years of Ukrainian and/or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: ad-



vanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187B. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187C. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187D. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187E. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187F. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187G. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187I. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187J. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187K. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187L. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**187M. Advanced Tutorial Instruction in Ukrainian (2)** Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. May be repeated for credit with topic change. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

## Graduate

**CM224G. Studies in Russian Literature: Gogol (4)** (Same as Russian CM224G.) Lecture, three hours. Lectures and readings in English. Short stories, novel *Dead Souls*, and selected plays. Concurrently scheduled with course CM124G. S/U or letter grading.

**C280. Variable Topics in Ukrainian Literature (4)** Seminar, three hours. Reading knowledge of Ukrainian recommended but not required. Topics include major writers, genres, or periods. May be repeated for credit with topic change. Concurrently scheduled with course C180. S/U or letter grading.

# Social Science

## Social Science Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**110A. Social Science in Context: Perspectives and Methods in Study of Culture and Society (4)** Lecture, three hours. Introduction to social science perspectives and methods for study of culture and society through combination of theoretical discussions and practical exercises. Students gain understanding of interaction of persons, societies, cultures, environments, and time. Examination of relationships between language, culture, and society to gain insights into processes of social reproduction of identities, power relations, and inequality. Students are exposed to working parts of social research: ethics of studying people and communities, gathering and analyzing of data (e.g., observations, interviews, and surveys), and interpretation and presentation of findings. Students gain informed and responsible values and attitudes towards just society, intercultural understanding, informed and active citizenship, ethical research practices, and lifelong learning. Letter grading.

**110B. Social Science in Context: Understanding New Zealand from Colonialism to Neoliberalism (4)** Lecture, eight hours (four weeks). Offered as part of summer UCLA Travel Study Program to New Zealand. Examination of life in Aotearoa, also known as New Zealand. Focus on historical events and social processes as well as axes of difference such as ethnicity and class and ways in which they have shaped and continue to influence cultural, political, social structures, and norms and values in New Zealand. Students learn to employ social science theories and concepts to gain deeper understanding of issues New Zealand faces. Through readings, classroom discussions, field trips, which provide valuable firsthand experiences, local guest speakers, and unique opportunity of exploring forces that shape society and culture in context of one of most celebrated democracies in world, students gain greater insight into social and political relations and events elsewhere in world, including U.S. Letter grading.

**188. Academic Innovation in Industry (1)** Lecture, one hour (six weeks). Exploration of how to apply disciplinary knowledge to industry problems and technology trends. Students build skills to enable them to create novel ways of meeting challenges, build network intelligence, and communication their ideas and expertise. Students also learn problem-solving techniques like lean startup approach. Uses case study approach to show how social scientists have connected with recent technology trends to produce impactful innovation. P/NP grading.

### Graduate

**M240. Data and Society (4)** (Same as Digital Humanities M221.) Seminar, three hours. Introduction to way data and computing technologies increasingly play pivotal role in social life. Students pose critical questions about social impact of data, while also gaining literacy in engaging digital and data tools. Students learn to recognize historically and institutionally produced biases in data research and science. Engagement is encouraged with how to work with data for social justice aims. S/U or letter grading.

**400A. Social Science Research and Perspectives (4)** Seminar, three hours. Exploration of contribution of social science research to addressing complex social problems. Students engage wide array of disciplinary perspectives, research methods, and analytical approaches. Emphasis placed on development of multidisciplinary, integrative approaches to social science research. Students learn how to identify and frame social problem; how to identify, interpret, and evaluate relevant research; and how to synthesize research findings

generated from different theoretical, methodological, and disciplinary approaches. Development of essential research, writing, and analytic skills. Letter grading.

**400B. Social Science Research and Perspectives (4)** Seminar, three hours. Exploration of contribution of social science research to addressing complex social problems. Students engage wide array of disciplinary perspectives, research methods, and analytical approaches. Emphasis placed on development of multidisciplinary, integrative approaches to social science research. Students learn how to identify and frame social problem; how to identify, interpret, and evaluate relevant research; and how to synthesize research findings generated from different theoretical, methodological, and disciplinary approaches. Development of essential research, writing, and analytic skills. Letter grading.

**401. Qualitative Social Science Research Methods (4)** Seminar, three hours. Introduction to range of qualitative approaches used in social science research and analysis through combination of theoretical discussions and practical experience. Examination of practical and epistemological issues in qualitative research in workshop format. Covers practical workings of qualitative research: gathering data through interviews, focus groups, observation, questionnaires, and archival research; strategies for recording, coding, and analyzing qualitative data; and evaluating and presenting qualitative research. Prepares students to undertake research using qualitative methods through collaborative class research project. Letter grading.

**402. Quantitative Data Analysis in Social Science (4)** Lecture, two and one half hours; discussion, one hour. Introduction to fundamentals of data analysis and statistics, focusing on application of statistical methods in social problems research. Students develop skills and strategies for evaluating research evidence, and for comparing and synthesizing results of studies that adopt different research methodologies. Descriptive statistics, inferential statistics, probability, statistical tests, correlation, and causation, and regression analysis. Other topics include organizing quantitative data (e.g., tables, graphs), methods for describing data with respect to central tendency, dispersion, and association. At course end students should be able to perform data analysis using appropriate software, to interpret results, and to make critical evaluations of quantitative social science research. Letter grading.

**403. Quantitative Evidence and Analysis in Social Sciences (4)** Seminar, three hours; laboratory, one hour. Advanced training in data analysis and statistics, and training in strategies for evaluating research evidence and comparing results of studies that adopt varying research methodologies. Students gain experience working with large datasets, and with designing, testing, and validating statistical modeling techniques. Students are familiarized with datasets most relevant to their individual research interests. Students receive general training and individualized mentoring in selecting appropriate dataset for their major research paper (MRP). Letter grading.

**404. Research Design in Social Science (4)** Lecture, three hours. Introduction to main components of research projects, focusing on research questions, theoretical frameworks, and research design. Students design feasible research plan for individual project. Students identify research topic and specify research question; identify existing data for original analysis; compare theoretical frameworks for social scientific analysis of data; assess relevant evidence and literature; and explore approaches to data analysis. Students submit assignments, and complete research proposal. Letter grading.

**410. Engaged Social Science (4)** Seminar, three hours. Exploration of theory and practice of engaged social science, tracing its historical development from policy studies and related fields to more activist modalities of critique and intervention. Drawing on classic and contemporary studies in sociology, anthropology, political science, environmental studies, and social justice, to engage students in larger debates about politics of knowledge in relation to issues, such as poverty, racism, public health, refugees, gang culture, gender hierarchies, public education, and citizenship. Letter grading.

**419. Data Analysis (4)** Lecture, three hours. Workshop in which students develop research and analysis skills related to establishing and executing data analysis plan. Students engage in intensive peer-review process, working collaboratively in small groups. Students receive detailed feedback from instructor, teaching assistants, and faculty readers, and are expected to routinely revise their work. Students refine their presentation skills and prepare three- to five-minute presentation. Letter grading.

**420. Research Design and Analysis (4)** Seminar, three hours. Guided completion of major research paper (MRP). Students receive detailed feedback from instructor, revise literature review, finalize analysis, tighten rhetoric, and improve organization of manuscript to transform it into final research paper. Letter grading.

**430. Community-Based Research (4)** Lecture, three hours; fieldwork, two hours. Study of principles, ethics, and methods of community-based research (CBR), and place and purpose of scholarly inquiry. Working in teams, students

conduct small-scale research projects in collaboration with local community organizations. Teams work closely with instructors and organization agents on all aspects of research design, execution, and data analysis. Students apply quantitative and qualitative research methods skills acquired in courses 401 and 402 to research projects. Attendance at research site meetings, team meetings, and weekly on-campus class meetings required. Each team produces and submits final research report to community partner by end of quarter. Letter grading.

**430A. Community-Based Research, Part 1 (4)** Lecture, three hours; fieldwork, two hours. Part 1 of 2-part series. Students learn principles, ethics, and methods of community-based research (CBR), and place and purpose of scholarly inquiry. Working in teams, students conduct small-scale research projects in collaboration with local community organizations. Research projects are selected in consultation with instructor and community organization to be completed within quarter. Teams work closely with instructors and organization agents on all aspects of research. Teams develop research design, data collection methods and protocols, recruit participants, and engage in data collection. Students apply quantitative and qualitative research methods skills acquired in courses 401 and 402 to their research projects. Students are expected to attend meetings at research sites, team meetings, and weekly class meetings on campus. Letter grading.

**430B. Community-Based Research, Part 2 (4)** Lecture, three hours; fieldwork, two hours. Part 2 of 2-part series. Focus on data analysis and writing of final report. Working in teams, students develop data analysis plan, identify units of analysis, develop coding scheme, determine statistical inquiries, and conduct data analysis (including statistical analyses of quantitative data and coding of qualitative data) and interpretation of results. Work is divided fairly among team members with each team member contributing based on their skills and talents. Teams work closely with instructors and organization agents on all aspects of research and write-up. Students are expected to attend all meetings at research sites, team meetings, and weekly class meetings on campus. Each team produces and submits final research report to instructor and community partner. Letter grading.

# Social Thought

## Social Thought Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190A. Research Colloquia in Social Thought I (2)** Seminar, two hours. Corequisite: course 199A. Limited to juniors/seniors. Required of students in Social Thought minor. Designed to bring together students undertaking supervised senior thesis work in seminar setting with one or more faculty members to discuss their work or related work in Social Thought minor. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

**190B. Research Colloquia in Social Thought II (2)** Seminar, two hours. Corequisite: course 199B. Limited to juniors/seniors. Required of students in Social Thought minor. Designed to bring together students undertaking supervised senior thesis work in seminar setting with one or more faculty members to discuss their work or related work in Social Thought minor. Led by one supervising faculty member. P/NP grading.

**199A. Directed Research or Senior Thesis in Social Thought I (4)** Tutorial, to be arranged. Corequisite: course 190A. Limited to juniors/seniors. Required of students in Social Thought minor. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

**199B. Directed Research or Senior Thesis in Social Thought II (4)** Tutorial, to be arranged. Corequisite: course 190B. Limited to juniors/seniors. Required of students in Social Thought minor. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

# Social Welfare

## Social Welfare Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**100A. Introduction to Social Welfare: Policies and Programs (4)** Lecture, four hours. Origin and development of major U.S. social welfare programs and policies guiding them, with emphasis on analysis of policy developments/issues related to provision of social welfare services. Study of historical and current responses of profession to major social problems. P/NP or letter grading.

**100B. Social Welfare Policy: Overview (4)** Lecture, four hours. Requisite: course 100A. Review of existing policy regarding major social issues in field of social welfare. Examination of discrepancy between need and capacity of social agencies to address need. Exploration of differential impact of policy on various populations. P/NP or letter grading.

**101. Social Welfare in Multicultural Society (4)** Lecture, four hours. Social policy viewed from perspective of various cultural groups. Students to become aware of their own cultural perspective and learn to recognize similarities and differences in values, perspectives, and beliefs across cultural groups. P/NP or letter grading.

**102. Social Welfare Organizations and Community Systems (4)** Lecture, four hours. Recommended requisites: courses 100A, 100B. Detailed demonstration of implementation of policy via functioning of human service organizations. Examination of organizational structures/functions. Exploration of characteristics and organization of community and forces that influence its development and change. P/NP or letter grading.

**103. Introduction to Direct Practice with Individuals, Families, and Groups (4)** Lecture, four hours. Requisites: courses 100A, 100B, 101. Description and demonstration of basic skills employed in direct social work practice via case-work process. Students practice these skills in written, role-play, small group, and video or audio exercises. P/NP or letter grading.

**104C. Diversity in Aging: Roles of Gender and Ethnicity (4)** (Same as Chicana/o and Central American Studies M106B, Gender Studies M104C, Gerontology M104C, and Public Affairs M131.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

**104D. Public Policy and Aging (4)** (Same as Gerontology M104D.) Lecture, four hours. Examination of theoretical models and concepts of policy process, with application to aging policy. Analysis of decision-making processes that affect aging policy. Description of history of contemporary aging policy. Exploration of current policy issues affecting elderly. P/NP or letter grading.

**104E. Social Aspects of Aging (4)** (Same as Gerontology M104E.) Lecture, four hours. Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around key aspect of social gerontology. P/NP or letter grading.

**105. Social Welfare Policy in Modern America: Historical Perspectives (4)** Lecture, three hours; outside study, nine hours. Historical overview of American social policy dealing with three core societal problems: poverty, sickness, and joblessness. Programs developed by governments to ameliorate these

problems have typically been public insurance programs or cash transfers such as unemployment insurance, welfare, and Social Security. Collectively these programs are known as the welfare state; examination of origins of the U.S. welfare state, its development over time, and features that make it distinctive as compared to welfare states in other nations. Letter grading.

**106. Research Seminar and Field Observation: Social Welfare (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Didactic component with focus on development of basic skills in the areas of research. Students select one field of observation experience (module) from a number of field settings. P/NP or letter grading.

**107. Field Practicum: Social Welfare (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 106. In field practicum students are placed in a specific agency where they combine observation of agency functions with participation in specific agency tasks and roles under instructional supervision of an agency mentor and a UCLA faculty member. P/NP or letter grading.

**108. Biomedical, Social, and Policy Frontiers in Human Aging (5)** (Same as Gerontology M108 and Public Affairs M130.) Lecture, four hours. Limited to juniors/seniors. Course of human aging charted in ways that are based on variety of recent research frontiers. Use of conceptual frameworks to increase relevance of aging to students' lives and enhance their critical thinking—biopsychosocial approach that is based on recognition that aging is inherently interdisciplinary phenomenon, and life course perspective that is distinguished by analytical framework it provides for understanding interplay between human lives and changing social structures, and allows students to understand how events, successes, and losses at one stage of life can have important effects later in life. Focus on individuals as they age within one particular sociohistorical context. Letter grading.

**110. Inequality and Democracy: Analysis and Praxis of Public Problems (4)** (Same as Urban Planning M110.) Lecture, three hours; discussion, one hour. Analysis and praxis of public problems. Taking up case of persistent inequality in liberal democracies, coverage of key frameworks and methodologies for understanding and analyzing poverty and inequality and examination of forms of action, from role of government to social movements, that seek to intervene in such problems. Study of problems, programs, policies, and politics in globally interconnected, transnational world, while avoiding analytical divide between global north and global south. Letter grading.

**130A. Community Research and Services Seminar (4)** Seminar, three hours; service learning, four hours; outside study, five hours. Course 130A is requisite to 130B. Limited to juniors/seniors. History and roles of social welfare policy within government, organizations, and communities. Reflections about service-learning site experiences, with application of issues related to lecture and seminar readings. Students to be assigned to two-term tutoring/mentoring site where they apply tutoring techniques as they assist middle school children living in impoverished areas of Los Angeles County. In Progress grading (credit to be given only on completion of course 130B).

**130B. Community Research and Services Seminar (4)** Seminar, three hours; service learning, four hours; outside study, five hours. Requisite: course 130A. Limited to juniors/seniors. History and roles of social welfare policy within government, organizations, and communities. Reflections about service-learning site experiences, with application of issues related to lecture and seminar readings. Students to be assigned to two-term tutoring/mentoring site where they apply tutoring techniques as they assist middle school children living in impoverished areas of Los Angeles County. P/NP or letter grading.

**131. Poverty, Poor, and Welfare Policy (4)** Seminar, three hours. Limited to juniors/seniors. Current research and policy issues concerning poverty in the U.S., with specific emphasis on single-parent households. Overview of measurements and characteristics of poor people; alternative theoretical explanations of poverty; historical overview of major social welfare policies to combat poverty, particularly Aid to Families with Dependent Children (AFDC) and Personal Responsibility and Work Opportunity Reconciliation Act (PROWA); and critical appraisal of recently enacted state welfare reform policies. Relationship between research knowledge about poverty and current policies, and effects of gender, ethnicity, and class on patterns of poverty and policy responses. P/NP or letter grading.

**132. Community Analysis and Community Needs (4)** Lecture, three hours. Limited to juniors/seniors. Theoretical and practical foundation for understanding and depicting demographic composition of communities and for determining community needs. Use of systems theory as organizing framework. Community-level interventions are affected by community's social ecology, culture, economic system, political system, ethnic composition, and class structure. Agencies often seek to define community needs and develop interventions to respond to those needs. Knowledge of community infrastructure necessary for ascertaining its strengths and resources that can be mobilized

for addressing and responding to community needs, issues, and concerns. Social service agencies and communities can work together in partnership to enhance quality of community life. P/NP or letter grading.

**140. Introduction to Study of Aging (4)** (Same as Psychology M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

**142XP. Intergenerational Communication across Lifespan (4)** (Formerly numbered M142SL.) (Same as Gerontology M142XP and Public Affairs M129XP.) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psychological, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

**151. Child Welfare Policy in America (4)** (Formerly numbered 151.) (Same as Public Affairs M124.) Lecture, three hours. Limited to juniors/seniors. Examination of public child welfare system in the U.S. Review of social policies and programs that impact children. History of social policies and programs for children, including discussion of orphanages, foster care, and adoptions. Transformation of public child welfare system into child protection system. Impact of welfare reform on child policies and programs in the U.S. Major programs designed to provide safety net for disadvantaged children, including welfare, food stamps, child care, child support, and children's allowance programs. Review of research and analysis in this area. Overview of social policies and programs that impact children in the U.S. Examination of comparative policies in other countries. P/NP or letter grading.

**162. Health Policy and Services (4)** Seminar, three hours. Limited to juniors/seniors. Contemporary issues in healthcare financing and delivery and historical perspective on these issues. Role of government in healthcare and ways controversy about this role continues to shape and constrain public policy in health. Major public programs, notably Medicare and Medicaid, and their relationship to issues of access and cost for diverse vulnerable populations. Various public and private approaches to healthcare reform and ways of thinking about their predicted impact, cost, and political feasibility. Issues in care of persons with chronic illness and debate about public and private approaches to long-term care reform. Social work roles in healthcare policy and practice. P/NP or letter grading.

**163. Prevention of Risky Substance Use and Related Problems (4)** Lecture, four hours. Limited to juniors/seniors. Prevention of substance use and related harms from legal and illegal substances is major concern to parents, communities, and nations. Examination of research related to patterns of drug use and related harm (such as crime and mental health disorders) and effectiveness of interventions to reduce these problems. Through review of science-based programs and policies, evaluation of effectiveness of evidence-based interventions to increase student knowledge, skills, and expertise in determining effective interventions to reduce drug-related harm, using most up-to-date information. P/NP or letter grading.

**164. HIV Prevention in U.S. and Developing World (4)** Lecture, three hours. Limited to juniors/seniors. Examination of various approaches to HIV prevention, drawing on infectious disease paradigms from public health and theories of behavior change from fields of psychology, sociology, and communications. Sexual behavior and injection drug use, existing and promising technologies to reduce HIV transmission, and fiscal, cultural, ethical, and moral dilemmas in allocation of prevention resources. P/NP or letter grading.

**165. Disability Policy and Services in Contemporary America (4)** (Same as Disability Studies M130 and Gerontology M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

**181. Nonprofit Sector, State and Civil Society (4)** Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent el-

ements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced corequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Social Welfare (4)** Seminar, three hours; outside study, nine hours. Examination in depth of particular subfield of social welfare (e.g., child welfare, children and youth, nonprofit, health, mental health). Limits of investigation set by individual instructor. May be repeated for credit with topic change. Letter grading.

**194. Internship Seminars: Social Welfare (1)** Seminar, one hour; outside study, three hours. Corequisite: course 195. Not open to freshmen. Introduction to topics relevant to psychosocial determinants of children's health and community resources for children and families, with opportunity to gain breadth and depth of knowledge in seminar setting. May be repeated for credit. P/NP or letter grading.

**195. Community Internships in Social Welfare (2)** Tutorial, four hours. Corequisite: course 194. Not open to freshmen. Introductory course in community-based child health and advocacy. Students learn about community resources for children and families through service learning experience and work with pediatric patients and families in UCLA pediatric unit. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

**199. Directed Research in Social Welfare (2, 4)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**202A. Dynamics of Human Behavior (4)** Lecture, two and one half hours. Requisites: courses 201A, 201B. Deviations and pathologies or stresses in physical, emotional, and social areas of human functioning as those problems relate to role and function of social workers. S/U or letter grading.

**202B. Dynamics of Human Behavior (4)** Lecture, two and one half hours. Requisites: courses 201A, 201B. Deviations and pathologies or stresses in physical, emotional, and social areas of human functioning as those problems relate to role and function of social workers. S/U or letter grading.

**203A. Integrative Seminar (4)** Seminar, two and one half hours. Integrative courses that bring together theory and practice of social work in variety of topic areas relevant to profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

**203B. Integrative Seminar (4)** Seminar, two and one half hours. Integrative courses that bring together theory and practice of social work in variety of topic areas relevant to profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

**203C. Integrative Seminar (4)** Seminar, two and one half hours. Integrative course that brings together theory and practice of social work in variety of topic areas relevant to profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

**203X. Special Topics in Public Affairs (4)** (Same as Public Policy M291C and Urban Planning M210A.) Seminar, three hours; outside study, nine hours. Advanced seminar on emerging issues across public policy, social welfare, and urban planning. May be repeated for credit. S/U or letter grading.

**206A. Homelessness: Housing and Social Service Issues (4)** (Same as Urban Planning M270.) Lecture, 90 minutes; discussion, 90 minutes; one field trip. Review of current status of homelessness: who homeless are, what social services and housing are available, existing and proposed programs—appropriate architecture, management, and sources of funding. Outside speakers include providers of services to homeless. Letter grading.

**210A. Foundations of Social Work Practice I (4)** Lecture, two and one half hours. Corequisite: course 401A. Framework for all social work practice—purpose, values, knowledge, and skills—and core processes of preparation, engagement, problem or need definition, assessment, contracting, and beginning professional action with and on behalf of clients. Introduction to evaluation of outcomes. Letter grading.

**210B. Foundations of Social Work Practice II (4)** Lecture, two and one half hours. Corequisite: course 401B. Weighing and carrying out evidence-supported practices based on differential assessment of people and their situations, with particular focus on following intervention approaches: case management, motivational interviewing, crisis intervention, cognitive, task-centered, and solution-focused therapies, as well as interventions appropriate for family functioning, small group processes, and environmental modification (advocacy and community organization). Continued evaluation of outcomes. Letter grading.

**210C. Foundations of Social Work Practice III (4)** Lecture, two and one half hours. Corequisite: course 401C. Core concepts of social work practice in organizational, community, and policy settings. Exploration of leadership style and development of personalized group work skills. Role of macro practice in agency-based social work in advancing strategies of organizational and social change. Interface and interaction among policy decisions, community needs, and program development. How societal values influence formation, implementation, and evaluation of social welfare policies, programs, and services. Analysis of social, economic, and political context of community practice in order to understand policy roots of economic and social injustices. Letter grading.

**211A. Human Behavior in Social Environment: Theoretical Perspectives in Social Work and Social Welfare I (4)** Lecture, two and one half hours. Introduction to terminology and scope of systems framework that underlies social work practice interventions. Students learn how to identify and assess small- and large-scale forces that influence problems presented by clients. Letter grading.

**211B. Human Behavior in Social Environment: Theoretical Perspectives in Social Work and Social Welfare II (4)** Lecture, two and one half hours. Concerted study of racism, oppression, and social functioning covering various perspectives on roots and significance of racism and other forms of oppression in U.S. (and other societies) today. Forces contributing to initiation and maintenance of institutional oppression and inequality across social categories such as race, ethnicity, gender, sexuality, religion, ability, and age. Letter grading.

**212. Human Behavior in Social Environment: Critical Self-Awareness and Intergroup Dialogue (2)** Lecture, 75 minutes. Introduction to critical self-awareness and intergroup dialogue. Exploration and appreciation of worldviews and experiences of colleagues. Through self-awareness students learn to engage with diversity and difference in social work practice. Through intergroup dialogue, students learn to explore social group identity, conflict, community, and social justice. S/U grading.

**213A. Social Welfare Research Methods (4)** Lecture, two and one half hours. Introduction to various research methodologies, including experimental and quasi-experimental designs, survey research methods, qualitative methods, and single subject and group-based research designs. Exploration of ethical issues pertaining to social welfare and social science research. Students learn and practice formulating research problems, research questions, and hypotheses and learn how to critically review theory and research. Measurement, sampling procedures, and basic descriptive statistics. Letter grading.

**213B. Applied Statistics in Social Welfare (4)** Lecture, two and one half hours; discussion, one hour. Core statistics course builds on research methods taught in course 213A, and designed to help students develop basic understanding of descriptive and inferential statistical approaches. Introduction to statistical reasoning, with emphasis on how statistics can help us understand

world. Topics include numerical and graphical summaries of data, data acquisition and experimental design, probability, hypothesis testing, confidence intervals, correlation, and regression. Letter grading.

**214A. Foundations of Social Welfare Policy (4)** Lecture, two and one half hours. Overview of key areas of social welfare policy. Roots of American social welfare policy and how they have given rise to today's social policy structure. Path of social welfare policy development, birth of profession of social work and how it has paralleled major social policy issues from early colonial settlements to present day. Specific events and important individuals that have influenced public policy affecting vulnerable populations, such as racial and ethnic minorities, women, children, the poor, and other diverse populations. Examination of role of social research in informing social welfare policy. Letter grading.

**214B. Leadership for Social Change (4)** Lecture, two and one half hours. Overview and understanding of leadership and social policy elements for effective social change in dynamic and diverse society. Builds on foundations of social welfare history and policy developments. Examination of elements of policy advocacy and competencies for effective social work leadership in organizational and community settings and integration of research and theory in addressing and resolving complex social problems. Letter grading.

**215. Global Public Affairs: Governing in Interconnected World (4)** (Same as Public Policy M228B and Urban Planning M231.) Lecture, three hours; outside work, nine hours. Conceptually, focus on interplay between three major institutional complexes of modern, globalizing societies and organizations that operate within them: state, market, and civil society. Study moves between abstract theory and concrete examples, offers sense of where these institutions and organizations have come from, and helps chart their present trajectories. From perspective of governance, assessment of roles and configurations of institutions and organizations to address today's challenges. S/U or letter grading.

**216. Theories of Health Behavior and Health Promotion (4)** Lecture, three hours. Exploration of theories and application of health promotion/education planning, implementation, and evaluation by health professions in variety of settings. Emphasis on research related to determinants of health behavior, plus strategies and techniques used by professionals to foster human health. Letter grading.

**223. Seminar: Social Work Profession (2)** Seminar, two hours. Nature and role of social work in contemporary society; relationships with other professions; probable future trends in profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of profession. S/U grading.

**229A. Craft of Social Welfare Scholarship I (4)** Lecture, three hours; outside study, nine hours. Limited to PhD students. Exploration of one problem for study—its history, current state of knowledge about why problem exists, and what might be done about it. Survey of several problems and alternative ways in which problems have been conceptualized and studied to understand how scholars use theory and empirical evidence to advance what is known, what is yet unknown, where there are important gaps in understanding particular problems, and what might be done to solve them. Letter grading.

**229B. Craft of Social Welfare Scholarship II (4)** Lecture, three hours; outside study, nine hours. Enforced requisite: course 229A. Limited to PhD students. Continued narrowing of student focus on one social welfare research problem, moving from understanding of evolution and context of general problem to more detailed and intensive review of research literature on specific researchable question to deepen student understanding of existing knowledge on topic and begin to identify one or more critical gaps in knowledge to explore. Discussion of different methods of summarizing research literatures, identifying seminal studies, and interpreting contradictory findings. Regular meetings to discuss ongoing work and to encourage students to review their work with their faculty advisers and/or other mentors with expertise in their problem areas. Letter grading.

**229C. Craft of Social Welfare Scholarship III (2)** Lecture, 90 minutes; outside study, four and one half hours. Enforced requisite: course 229B. Limited to PhD students. Focus on craft of scholarly writing for publication to help students develop effective narrative frame for presentation, make choices about extent of detail and shape of literature review, and achieve cogent presentation and conclusion. Consideration of elements of effective professional writing. Letter grading.

**231A. Family Systems Interventions (4)** Lecture, two and one half hours. Application of theories and techniques to develop framework for couples and family social work practice. Examples of social work practice with couples and families may include developing relationship skills for those struggling with mental illness; supportive interventions for family members of impaired or frail elderly; parent education and skill development for welfare recipients; individual, couple, and family interventions for victims of abuse; bereavement

support groups, or interventions helping families to recover from experiences with substance abuse, domestic violence, sexual difficulties, and more. S/U or letter grading.

**231B. Advanced Social Welfare Practice (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of theories, concepts, and principles underlying social casework practice. Specific attention to deviation and stress as conditions affecting functioning of individuals and groups and to diagnostic knowledge and competence required in rehabilitation and prevention. S/U or letter grading.

**231E. Advanced Social Welfare Practice: School Social Work (4)** Lecture, two and one half hours; outside study, nine hours. Integration of theory and practice as they pertain to role of social workers in school settings. Biopsychosocial/ecological assessment of students (including, but not limited to, differences due to ethnic and/or cultural diversity and to students who are learning handicapped), ecological intervention strategies, collaboration within multidisciplinary team, and role of liaison between pupils, family, school, and community. Use of discussion, videos, current literature, and case presentation to explore impact of school social workers as change agents. S/U or letter grading.

**231F. Advanced Social Welfare Practice: Cognitive-Behavioral Theories and Methods (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of key contributors, essential concepts, core theories, current controversies, and recent research findings in contemporary cognitive-behavioral therapy; case conceptualization from cognitive-behavioral perspective; specific cognitive and behavioral assessment methods and intervention techniques and their typical applications; contextual considerations, including human diversity and other sociocultural and developmental factors, in arriving at case conceptualizations and treatment plans. S/U or letter grading.

**231G. Advanced Social Work Practice: Substance Abuse Intervention (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of major intervention approaches—individual, family, group, and environmental—to treating substance abuse and dependency. Specific attention to skills and self-awareness to integrate biological, psychological, and social factors in assessing and intervening with substance-using clients and target populations. S/U or letter grading.

**231J. Advanced Social Work Practice: Child Welfare (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of role of public child welfare worker in relationship to consumer, agency, and community. Further development of social work and case management skills in context of public child welfare practice. Clinical case management explored as intervention in its own right in addition to its use as mechanism for linking children and families to other social systems, professions, and forms of intervention. Interpretation of current public child welfare events, trends, terms, and laws and their relationship to direct practice issues. S/U or letter grading.

**231K. Advanced Social Work Practice: Mental Health (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Designed to provide students with grounding in social work practice with adults in mental health settings. Emphasis on evidence-based approaches to providing services to pervasive and persistent mentally ill. Exploration of strengths-based recovery-oriented approaches that are consistent with knowledge and values of social work practice. Exposure to range of interventions applicable to most common mental health problems and barriers to service delivery for this vulnerable population, such as stigma, criminalization, cultural bias, and gaps in knowledge. S/U or letter grading.

**231M. Advanced Social Work Practice: Health (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of various roles that social workers occupy in health settings and strategies for working with healthcare teams. From case-based approach, examination of variety of clinical challenges, assessment techniques for use in multiple settings, and interventions to implement with individuals, families, groups, and multidisciplinary healthcare teams. Evaluation of policy implications that impact social work practice in health settings. S/U or letter grading.

**231N. Early Childhood Mental Health (4)** Lecture, two and one half hours; outside study, nine hours. Evidenced-based practice training with children and their caregivers in agency-based settings. Integration of theoretical bases of practice with associated methods. Focus on early attachments relationships and on-going life experiences with conflicts, loss, and trauma that occur within context of relationships. S/U or letter grading.

**231P. Advanced Social Welfare Practice: Gerontology (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of theoretical models related directly to practice with diverse population of older adults. Presentation of comprehensive tools for multidimensional geriatric assessment. How to engage in collaborative treatment planning across range of late-life problems and address impediments to intervention process. Theoretical underpinnings and most effective practice models to enable students to serve needs of older clients and their families as they adjust to late-life transitions, as well as to health and mental health problems most prevalent for older adults. Client populations range from well elderly to physically frail and/or demented from diverse backgrounds. S/U or letter grading.

**231Q. Advanced Social Welfare Practice: Psychopharmacology (4)** Lecture, two and one half hours. Offers distinctive social work/social welfare approach to psychopharmacology and psychiatric medications by emphasizing systems thinking, critical thinking, working with clients as partners, and social justice. Discussion of how psychoactive/psychotropic/psychiatric drugs are named and classified, and how they are studied and approved by FDA. Review of current effectiveness and safety data (and placebo effects) for main classes of drugs, and highlighting of current crisis of confidence in field. Brief summaries of basic neurobiological actions of drugs. Examination of previous and emerging roles of social workers around medications, as well as legal and ethical dictates of practice. Four practice skills are taught as essential for beginning social workers: reviewing relevant literature critically, taking psychiatric medication histories, understanding clients' subjective views and meanings of medications, and monitoring medications to reduce harms. Letter grading.

**231S. Child and Adolescent Trauma (4)** Lecture, two and one half hours. Introduction to common concepts (general theory and foundational knowledge), which inform evidence-based assessment and intervention with traumatized children and adolescents. Strength-based practice highlighted along with focus on identification of protective and promotive factors that foster resiliency and post-traumatic growth. Trauma is broadly defined, and includes children and adolescents exposed to traumatic events including but not limited to natural disasters, war, abuse and neglect, medical trauma, and witnessing interpersonal crime (e.g. domestic violence) and other traumatic events. Highlights role of development, culture, and empirical evidence in trauma-specific case conceptualization and treatment planning. Addresses level of functioning of primary care giving environments and assesses capacity of community to facilitate restorative processes. Letter grading.

**231X. Human Sexuality in Clinical Social Work Practice (4)** Lecture, two and one half hours. Exploration of physiological, psychological, and sociocultural variables associated with sexual expression, identity, orientation, and behavior. Additional focus on clinical issues most often presented in social work practice by individuals and couples, e.g., desire discrepancy in couples and extramarital affairs. Exploration of specific sexual dysfunctions identified in the Diagnostic and Statistical Manual of Mental Disorders in terms of their etiology and current treatment models used to address them. Discussion of field of sex therapy, past and present, as well as evidence bases for treatment. Neurobiology and new research on brain chemistry are highlighted as related to human sexuality and emotional relationships. S/U or letter grading.

**232. Prevention and Promotion in Health and Mental Health (4)** Lecture, two and one half hours. Core course for Health and Mental Health Across the Lifespan area of concentration. Introduction to social determinants/pathways of health, one of over-arching integrative and evidence-based frameworks accounting for upstream influences on health and mental health of populations. Review of different aspects of this approach and illustration of them with examples from efforts to prevent health and mental health problems and to promote positive health and mental health. Introduction to leading psychosocial theories that underpin social work practice in health promotion and disease prevention. Letter grading.

**241E. Nonprofit Organizations and Philanthropy: Management and Policy (4)** (Same as Public Policy M228 and Urban Planning M288.) Lecture, three hours; outside study, nine hours. Increased importance of nonprofit organizations—as service providers, vehicles of humanitarian assistance, policy advocates, social entrepreneurs, innovators, and as instruments of government reform—have moved this set of institutions closer to center of social welfare, urban planning and public policy agendas. Introduction of conceptual background, examination of theories and aspects of organizational behavior, and management models and policy frameworks. Lectures, seminar-type discussion, in-class presentations, and guest presentations. Letter grading.

**241G. Advanced Social Welfare Practice: Community Mapping (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Designed to familiarize students with use of geographic data in community practice. Development of skill base for community practice that provides students with tools necessary to organize and plan effectively for



political, economic, and social justice in communities. How to use geographic information systems (GIS) to inform community practice. S/U or letter grading.

**241H. Advanced Social Welfare Practice: Institutional Governance and Human Services Management (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Conceptual framework and analytic tools provided to understand organizational features of human services. Human service organizations work on people to improve, sustain, or prevent decline of well-being. Because of their function these organizations have special attributes that distinguish them from other organizations. Examination of these attributes, theoretical perspective to study them, and analysis of factors that shape nature of work they do. Explanation of determinants of relations between workers and clients by looking at such variables as policy environment, values and mission, internal structure, service technology, reward structure, organizational responses to staff and client diversity, and power relations between workers and clients. S/U or letter grading.

**241I. Advanced Social Welfare Practice: Grant Writing (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Process of grant writing, with emphasis on learning necessary skills to construct functional grant proposals. Application of problem-solving knowledge to development of human service grants. Various steps in writing grant proposals and opportunity to design/prepare grant proposals. S/U or letter grading.

**241J. Advanced Social Welfare Practice: Community Practice (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Designed to deepen student knowledge of community practice methods and empirical base that supports these methods in field of social welfare. Theory, practice, and research methods related to major community practice approaches in context of evidence-based philosophies and processes. Development of skills to address community problems using best available data by applying course concepts to student projects. S/U or letter grading.

**241K. Advanced Social Welfare Practice: Policy Practice (4)** Lecture, two and one half hours; outside study, nine hours. Corequisite: required social work practicum. Methods of social work policy practice and policy advocacy as problem-solving process. Analysis of consequences of existing social policies, particularly for marginalized populations, development of alternative policies, and use of different advocacy tools/techniques to gain support for policy change. S/U or letter grading.

**242. Resilience, Risk, and Thriving among Children and Families (4)** Lecture, two and one half hours. Core course for Child and Family Well-Being area of concentration. Introduction to advanced study of child and family well-being from social work perspective. Conveys seminal knowledge of key settings—and experiences within them—that impact children and family functioning. Drawing from resilience theory and empirical research, review of aspects of contexts such as parenting and family systems, schools, and neighborhoods—that serve as risk and protective factors for healthy child development. Emphasis on prevention efforts to ensure healthy development for all youth, stop family violence, and increase social connections. Prepares students for professional roles as social workers who serve, advocate for, and empower children and families around relevant social and economic justice issues. Letter grading.

**249A. Introduction to Luskin PhD Research (4)** (Formerly numbered 249A.) (Same as Urban Planning M208A.) Lecture, one hour; discussion, two hours. Required of first-year PhD students. Introduction to design and execution of public affairs research; exploration of subfields of public affairs scholarship and approaches to research on contemporary topics in social welfare and urban planning. Preparation and filing of PhD program of study. Letter grading.

**249B. Introduction to Qualitative Research (4)** (Formerly numbered 249B.) (Same as Urban Planning M208D.) Lecture, three hours; outside study, nine hours. Requisite: course M249A. Required in first or second year of PhD program. Introduction to philosophy, theories, logic, design, and practice of qualitative research by studying its varied methodologies. Letter grading.

**249C. Logic of Inference and Causation (4)** (Formerly numbered 249C.) (Same as Urban Planning M208B.) Seminar, three hours. Requisites: courses M249A, M249B. Required in first or second year of PhD program. Development of researchable hypotheses and accompanying research design strategies, understanding of threats to validity, review of critiques of traditional methods and of alternative approaches to scholarship. Letter grading.

**251A. Advanced Social Welfare Practice: Domestic and Sexual Violence (4)** Lecture, two and one half hours. Designed for second-year MSW students in macro and clinical social work. One most pervasive aspect of women's existence has been violence against them as consequence of their gender. Fac-

tual information and critical examination of theories, research, and clinical and policy practices in social work regarding various forms of violence against women and girls in their homes, workplaces, and communities provided. Exploration of macro- and micro-level interventions in social work practice to address impact of violence on communities and individuals. Letter grading.

**251B. Advanced Social Welfare Practice: Military Social Work (4)** Lecture, two and one half hours. Designed for second-year MSW students. Foundational understanding of contemporary issues being experienced by U.S. service members, veterans, and their families, following longest wars in U.S. history. Exploration of different modes of military service and identities (i.e., active duty, National Guard, Reserve, and veteran) along with correlative issues for family members. Examination of family life cycles and military policies and approach to families. Use of trauma-informed practice lens to focus on working with veteran community of all campaigns, as well as current military members and their families. Discussion of military and veteran policies, programs, and practices in context of both social work theory and research, as basis for military social work practice at direct service and policy practice levels. Vicarious trauma, care for caregivers, and provider self-care also addressed. S/U or letter grading.

**252. Theories and Practices of Social Justice (4)** Lecture, two and one half hours. Core course for Social and Economic Justice area of concentration. Trains students to understand philosophies of social justice, history of ideas, and key ethical frameworks underpinning social work. Connects theory and practice through focus on poverty interventions, welfare policy, mass incarceration, community organizing, homelessness, and displacement. Focus on U.S. with emphasis on global and comparative approach to social welfare. Letter grading.

**258. Applied Research Design: Dissertation and Thesis Proposal (4)** (Formerly numbered 258.) (Same as Urban Planning M208C.) Seminar, three hours. Required of all PhD students who have passed their field examinations but have not yet advanced to candidacy and all MURP students completing their thesis capstone option. Advanced research design course that guides students in selecting problem/question to study, reviewing previous research on problem/question, framing specific research questions/hypotheses, and selecting methodology and plan for testing hypotheses. May be repeated for credit. S/U or letter grading.

**259. Variable Topics in Statistics in Social Sciences (4)** Lecture, three hours. Limited to graduate students. Designed to provide in-depth understanding of particular topics in area of applied statistics/measurement to graduate students engaged in conducting research in broad array of fields that comprise social sciences. Letter grading.

**260A. Research Capstone I: Project Development (4)** Lecture, two and one half hours. Formulation of research problems, questions, and hypotheses that guide critical review of literature and illuminate understanding of interest area. Working in groups of three to four, development of proposal for research capstone project that includes literature review and outlines plans for collecting data or using existing data to address applied problem. Culminates in completion of full proposal for research capstone project and articulated work plan for team members. S/U grading.

**260B. Research Capstone II: Data Gathering, Analyses, and Interpretation (2)** Research group meeting, two hours. Supports students in implementing their research capstone, including data gathering and preliminary analysis. Class meetings may occur in small or large groups to assist with trouble shooting or to teach specialized research skills. Culminates in presentation of project methods and initial results. In Progress grading (credit to be given only on completion of course 260C).

**260C. Research Capstone III: Data Gathering, Analyses, and Interpretation (2)** Research group meeting, two hours. Analysis and interpretation of data and finalization of presentation formats of results. Grounding of interpretation of results in existing literature and discussion of findings for real-world applications. Culminates in final paper that includes abstract, theory and literature review, methods, results, discussion, and implications for social welfare. S/U grading.

**270. Being Leader and Effective Exercise of Leadership: Ontological/Phenomenological Model (4)** Lecture, five hours; outside study five hours. Students develop unique context for leadership which gives them direct access to effective exercise of leadership as their natural self-expression, in any situation, regardless of whether they hold title/position. Students have opportunity to become aware of and deal with personal obstacles (ontological constraints) to exercise of leadership. Using leadership project and diverse study group as laboratory, students practice and develop capacities to operate with integrity, uncover ontological constraints, reflect critically, listen authentically, and speak to those they are leading in way that promotes shared vision and inspires others to contribute. S/U or letter grading.

**281A. Advanced Social Welfare Research (2)** Discussion, two hours. Individual or group research projects requiring intensive examination and analysis of social problem area, directed toward development of research knowledge and techniques for social work practice. In Progress grading (credit to be given only on completion of courses 281B and 281C).

**281B. Advanced Social Welfare Research (2)** Discussion, two hours. Individual or group research projects requiring intensive examination and analysis of social problem area, directed toward development of research knowledge and techniques for social work practice. In Progress grading (credit to be given only on completion of course 281C).

**281C. Advanced Social Welfare Research (2)** Discussion, two hours. Individual or group research projects requiring intensive examination and analysis of social problem area, directed toward development of research knowledge and techniques for social work practice. S/U or letter grading.

**284A. Doctoral Research Apprenticeship (2 to 4)** Tutorial, to be arranged. Limited to PhD students. Exposes first-year PhD students to process of conducting research in social welfare. Students develop range of research skills and understanding of ethical procedures in research. Students participate in various activities depending on specific research project with which they work. Activities include research tasks such as conducting literature reviews, developing research questions, collecting data, cleaning and preparing data, analyzing data, and writing up research findings for conference and journal submissions. Students work closely with their faculty mentor and other graduate students. Introduction to research process and skills necessary for conducting research in social sciences. In Progress grading (credit to be given only on completion of courses 284B and 284C).

**284B. Doctoral Research Apprenticeship (2 to 4)** Tutorial, to be arranged. Limited to PhD students. Exposes first-year PhD students to process of conducting research in social welfare. Students develop range of research skills and understanding of ethical procedures in research. Students participate in various activities depending on specific research project with which they work. Activities include research tasks such as conducting literature reviews, developing research questions, collecting data, cleaning and preparing data, analyzing data, and writing up research findings for conference and journal submissions. Students work closely with their faculty mentor and other graduate students. Introduction to research process and skills necessary for conducting research in social sciences. In Progress grading (credit to be given only on completion of course 284C).

**284C. Doctoral Research Apprenticeship (2 to 4)** Tutorial, to be arranged. Limited to PhD students. Exposes first-year PhD students to process of conducting research in social welfare. Students develop range of research skills and understanding of ethical procedures in research. Students participate in various activities depending on specific research project with which they work. Activities include research tasks such as conducting literature reviews, developing research questions, collecting data, cleaning and preparing data, analyzing data, and writing up research findings for conference and journal submissions. Students work closely with their faculty mentor and other graduate students. Introduction to research process and skills necessary for conducting research in social sciences. S/U grading.

**285A. Research in Social Welfare (4)** Discussion, three hours. Review of areas of research of concern to social workers, with special attention to design, instrument construction, data collection, data processing, data reduction, analysis, and interpretation. Designs studied include survey, panel, experimental observation, and theory development research. S/U or letter grading.

**285B. Research in Social Welfare (4)** Discussion, three hours. Review of areas of research of concern to social workers, with special attention to design, instrument construction, data collection, data processing, data reduction, analysis, and interpretation. Designs studied include survey, panel, experimental observation, and theory development research. S/U or letter grading.

**285C. Research in Social Welfare (4)** Discussion, three hours. Review of areas of research of concern to social workers, with special attention to design, instrument construction, data collection, data processing, data reduction, analysis, and interpretation. Designs studied include survey, panel, experimental observation, and theory development research. S/U or letter grading.

**285D. Research in Child Welfare (4)** Lecture, three hours. Integrated examination of development of empirical research in child welfare field. Critical assessment of current approaches to meet needs of children who come to attention of child welfare agencies. Examination of research and theory in child welfare field. Review of student knowledge of research methods and statistics. Letter grading.

**285E. Research in Gerontology (4)** Lecture, three hours. Overview of research in aging. Development of research questions, selecting appropriate theoretical frameworks, conducting literature reviews, selecting appropriate research

design, identifying sampling methods. Special considerations in aging research, including sampling, questionnaire design, and recruitment issues. Letter grading.

**285F. Research in Health (4)** Lecture, three hours. Research in area of health policy and services. Discussions of readings about range of research from field of health services. Identification of research design issues, design of research instruments, analysis of strengths and limitations of current approaches to health services research, consideration of alternative roles for social work practitioners in arena of health services. Letter grading.

**285G. Research in Mental Health (4)** Lecture, three hours. Research methods in mental health. Application of experimental designs, survey research methods, ethnographic methods, single-subject designs, and observational methods. Operational definition of variables and selection and design of appropriate measures for research in mental health. Practice in critiquing published research related to mental health issues. Letter grading.

**285H. Program Evaluation Research (4)** Lecture, three hours. Discussion of differences and similarities between evaluation and other research, alternative program evaluation methods, roles and limitations of evaluation research in real world, development of proposals for feasible program evaluation research. Letter grading.

**285I. Research in Youth Populations (4)** Lecture, three hours. Research methods as applied to problems, issues, and interventions pertaining to youth populations. Instruction and experience in applying experimental and quasi-experimental designs, survey research methods, ethnographic methods, single-subject designs, and observational methods. Operational definition of variables and selection and design of appropriate measures for research with children and adolescents. Letter grading.

**286A. Survey of Research Methods (4)** Seminar, three hours. Basic concepts underlying research methods. Content includes theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative, and survey; sampling; statistical methods; methods of observation and techniques of data analysis. Letter grading.

**286B. Advanced Research Methods (4)** Seminar, three hours. Advanced concepts underlying research methods. Continuing study of theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative, and survey; sampling; statistical methods; methods of observation and techniques of data analysis. Letter grading.

**286C. Research Internship (4)** Fieldwork, four hours. Supervised study and training through participation in on-going research project or one initiated by students and carried out under faculty supervision, enabling students to apply research skills developed in prior courses. May be repeated for credit. S/U grading.

**290A. Seminar: Social Work (4)** Seminar, three hours; outside study, nine hours. Series of seminars dealing with trends in social work and social welfare, with focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research. S/U or letter grading.

**290B. Seminar: Social Work (4)** Seminar, three hours; outside study, nine hours. Series of seminars dealing with trends in social work and social welfare, with focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research. S/U or letter grading.

**290C. Seminar: Social Work (4)** Seminar, three hours; outside study, nine hours. Series of seminars dealing with trends in social work and social welfare, with focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research. S/U or letter grading.

**290D. Criminal Justice and Mass Incarceration (4)** Lecture two and one half hours. Exploration of relationship between social welfare and criminal justice system focusing on gangs, prison organization, reform, and reentry. Examination of life trajectories, development of and response to gangs in U.S. and globally. Examination of origin and development of major criminal justice policy surrounding gangs and relationship to punishment, incarceration, death penalty, and development and endurance of prison gangs. Analysis of criminal justice system history, future directions, and capacity of social welfare programs to address needs of marginalized populations. Letter grading.

**290E. Lesbian, Gay, Bisexual, and Transgender Health, Law, and Public Policy (4)** Lecture two and one half hours. Examination of LGBT-identified communities throughout U.S. Identification of health disparities that exist within broad conception of LGBT-identified communities, including disparities among most marginalized individuals and those living at intersections of multiple identities. Use of law and policy by situating goal of achieving health equity for LGBT communities in current political climate. Offers opportunity to evaluate how

better health outcomes for LGBT people may be helped by bringing relevant social science research to bear in shaping law and policy matters moving forward. Letter grading.

**290F. Firearm Violence Prevention Policy (4)** Lecture, two and one half hours. Introduction to upstream way of thinking about firearm-related violence. Examination of range of topics connected to contemporary debates about firearm violence in U.S. using collection of philosophical, social, and epidemiological literature. Ways of thinking theoretically and scientifically about causes and consequences of firearm violence in different contexts, from mass shootings to firearm suicides. Major theories advanced to explain firearm violence, methods used in scientific study of firearm violence, and important research findings about correlates, patterns, processes, and trends related to firearm violence. S/U or letter grading.

**290G. Psychotropic Drugs and Medications: Harm Reduction Policies (4)** Lecture, two and one half hours. Philosophy and policy applications of harm reduction approaches to legal (including prescription) and illegal psychoactive drug use in U.S. and elsewhere. Visions and obstacles for future management of psychoactive drugs such as opioids, stimulants, psychedelics, and benzodiazepines according to harm reduction principles. Implications for social work practice across lifespan. Letter grading.

**290I. Children with Special Healthcare Needs: Systems Perspective (4)** (Same as Community Health Sciences M420 and Health Policy M420.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

**290J. Child Welfare Policy (4)** (Same as Public Policy M212.) Lecture, three hours. Development of social policy as it affects families and children from different cultural backgrounds and as it is given form in public child welfare system. Examination of development of infrastructure to support needs of children and families. S/U or letter grading.

**290K. Mental Health Policy (4)** (Same as Public Policy M213.) Lecture, three hours. Examination of evolution of social policy and services for mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of mentally ill and services they are provided. S/U or letter grading.

**290L. Poverty, Poor, and Welfare Reform (4)** (Same as Public Policy M214 and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

**290M. Health Policy (4)** (Same as Public Policy M215.) Lecture, three hours. Introduction to contemporary issues in healthcare financing and delivery, providing historical perspective on emergence of these issues. Examination of major public programs and their relationship to issues of access and cost. S/U or letter grading.

**290N. Public Policy for Children and Youth (4)** (Same as Public Policy M216.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

**290P. Aging Policy, Elderly and Families (4)** (Same as Public Policy M261.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of theoretical models and concepts of policy process and application to aging policy. Analysis of decision-making processes that affect social policies. Description of historical development of contemporary policy. Exploration of current proposals and issues. Letter grading.

**290Q. Social Welfare Policy in Asian American Communities (4)** (Same as Asian American Studies M290Q.) Seminar, three hours. Overview of social welfare policy in Asian American communities. Introduction to major social welfare policies and programs in the U.S. and impact on Asian American communities. Policy development, approaches, processes of implementation, evaluation, and strategies to effect policy. S/U or letter grading.

**290S. Politics, Power, and Philanthropy (4)** (Same as Public Policy M227 and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

**290T. Juvenile Justice Policy (4)** Lecture, two and one half hours; outside study, nine hours. Designed for graduate students. Exploration of evolution of juvenile justice system in U.S. and issues that have shaped current-day practice. Role of social workers in system to be theme throughout course. Letter grading.

**290U. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits (4)** (Same as Public Policy M243 and Urban Planning M275.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

**290W. International Social Welfare (4)** Lecture, three hours; outside study, nine hours. Intended for graduate students interested in pursuing analysis of key international social welfare issues. Topics approached from perspective of globalization of social, economic, and political activities. Problems of global poverty, social injustice and inequality, and issues of racial, ethnic, and cultural diversity, with emphasis on multifaceted contributions of social work, social services, and social welfare and international social development within rich and poor countries. Acquisition of knowledge of international social welfare activities, as well as analytical skills to address and debate complex international issues. S/U or letter grading.

**290X. Comparative Perspective on States, Markets, and Civil Society (4)** (Same as Public Policy M247B and Urban Planning M210B.) Lecture, two and one half hours. Governance is about solving and managing societal problems, such as climate change, poverty, migration, security, mobility, pollution, or trade relations. Contemporary governance is complex set of laws, rules, and regulations involving rights and responsibilities of three institutional complexes of modern societies (state, market, and civil society), interests that guide them, and legitimacy and resources they command. Actors often reach across systemic, jurisdictional, and national boundaries; their relationships can be cooperative, neutral, or fraught with conflict, and governance outcomes can vary significantly. These dynamics involve fundamental challenges and, consequently, require significant governance readiness. Lectures, debates, in-class exercises, and student presentations. Exploration of several issues in more detail, e.g., types of state capacities, democracy, crisis management, governance innovation, and specific policy fields such as infrastructure or global finance. S/U or letter grading.

**297B. Current Issues in Public Affairs (2)** (Same as Public Policy M297C and Urban Planning M297B.) Lecture, one to two hours. Introduction to wide range of current issues in public affairs. Luskin school faculty present material from their research and teaching. Assigned readings are distributed in advance of each meeting. S/U grading.

**297F. Career Planning and Management (2)** (Same as Public Policy M297F and Urban Planning M297F.) Tutorial, six hours. Designed to meet professional development needs of first-year Public Policy, Social Welfare, and Urban Planning students. Development of career management skills while balancing busy life of graduate student. More than just deciding on chosen career path, career planning and management involves taking concrete steps to become career ready. Students gain fundamental career management skills to be competitive on job market, including creating competitive résumé and practicing interviewing articulately. Offers opportunity to learn professional development skills to assist with career planning strategies. S/U grading.

**401A. Practicum: Social Work (3)** Laboratory, 16 hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. Provides opportunities for students to test their theoretical knowledge and to acquire disciplined practice foundation in profession. In Progress grading (credit to be given only on completion of courses 401B and 401C).

**401B. Practicum: Social Work (3)** Laboratory, 16 hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. Provides opportunities for students to test their theoretical knowledge and to acquire disciplined practice foundation in profession. In Progress grading (credit to be given only on completion of course 401C).

**401C. Practicum: Social Work (3)** Laboratory, 16 hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. Provides opportunities for students to test their theoretical knowledge and to acquire disciplined practice foundation in profession. Letter grading.

**402A. Advanced Practicum: Social Work (4)** Laboratory, 20 hours. Requisites: courses 401A, 401B, 401C. Practicum in social work, arranged for students in keeping with their major field of study. In Progress grading (credit to be given only on completion of courses 402B and 402C).

**402B. Advanced Practicum: Social Work (4)** Laboratory, 20 hours. Requisites: courses 401A, 401B, 401C. Practicum in social work, arranged for students in keeping with their major field of study. In Progress grading (credit to be given only on completion of course 402C).

**402C. Advanced Practicum: Social Work (4)** Laboratory, 20 hours. Requisites: courses 401A, 401B, 401C. Practicum in social work, arranged for students in keeping with their major field of study. Letter grading.

**490. Professional Communication for Social Welfare (2)** Lecture, two hours. Writing workshop on students' papers in progress, with eye toward scholarly publication. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. S/U grading.

**495. Teaching Luskin Public Affairs (2)** (Same as Public Policy M495 and Urban Planning M495.) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596A. Special Study and Research in Social Welfare (2 to 8)** Tutorial, to be arranged. Individual programming for selected students to permit pursuit of subject in greater depth. S/U or letter grading.

**596B. Special Study and Research for PhD Candidates (2 to 12)** Tutorial, to be arranged. Limited to PhD students. S/U grading.

**597A. Preparation for MSW Comprehensive Examination (2 to 8)** Tutorial, to be arranged. S/U grading.

**597B. Preparation for PhD Qualifying Examinations (2 to 12)** Tutorial, to be arranged. Limited to PhD students. S/U grading.

**599. PhD Dissertation Research in Social Welfare (2 to 12)** Tutorial, to be arranged. Limited to PhD students. S/U grading.

# Society and Genetics, Institute for Society and Genetics Courses

## Lower Division

**5. Integrative Approaches to Human Biology and Society (5)** Lecture, three hours; discussion, one hour. Introduction to concept of problem-based approaches to study of biology and society and areas of concentration, such as bioethics and public science policy, evolutionary biology, culture, and behavior, historical and social studies of life sciences, medical genetics and public health, and population genetics and history, and central thematic issues shared across concentrations, such as commercialization of life and public understanding of science. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**71A. Biotechnology and Society (6)** (Same as Clusters M71A.) Lecture, three hours; discussion, two hours. Course M71A is enforced requisite to M71B, which is enforced requisite to M71CW. Limited to first-year freshmen. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. P/NP or letter grading.

**71B. Biotechnology and Society (6)** (Same as Clusters M71B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M71A. Limited to first-year freshmen. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. P/NP or letter grading.

**71CW. Biotechnology and Society: Special Topics (6)** (Same as Clusters M71CW.) Seminar, three hours. Enforced requisite: course M71B. Limited to first-year freshmen. Topics include in-depth examination of ethics and human genetics, bioweapons and biodefense, sex and biotechnology. Satisfies Writing II requirement. Letter grading.

**72A. Sex from Biology to Gendered Society (6)** (Same as Communication M72A, Clusters M72A, and Sociology M72A.) Lecture, three hours; discussion, two hours. Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72B. Sex from Biology to Gendered Society (6)** (Same as Communication M72B, Clusters M72B, and Sociology M72B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M72A. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72CW. Sex from Biology to Gendered Society: Special Topics (6)** (Same as Communication M72CW, Clusters M72CW, and Sociology M72CW.) Seminar, three hours. Enforced requisite: course M72B. Limited to first-year freshmen. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Genetic Concepts for Human Sciences (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for Life Sciences 4. Focused treatment of selected complex genetic concepts from molecular biology, population and quantitative genetics, and evolutionary biology, with emphasis on gene-environment interaction at various levels and culminating in exploration of notion of coevolution of genetics and society. Basic science concepts presented through real-world issues and research problems. Current research on cancer, immune system and development, and how this research is performed and adds to knowledge. Letter grading.

**102. Societal and Medical Issues in Human Genetics (5)** Lecture, three hours; discussion, two hours. Sequence of entire human genome is now known. Consideration of how this knowledge impacts concepts of ourselves as individuals and of our place in biological universe, concepts of race/ethnicity and gender, ability of DNA-based forensics to identify specific individuals, ownership and commodification of genes, issues of privacy and confidentiality, issues of genetic discrimination, issues of predictive genetic testing. Discussion of human cloning for reproductive and therapeutic purposes. Exposure to medical genetics cases. Discussion of role of whole genome sequencing in clinical setting. Human Genome Project influence on medicine and on our concepts of self and identity. Letter grading.

**105A. Ways of Knowing in Life and Human Sciences (4)** Lecture, three hours; discussion, one hour. Enforced prerequisite: course 5 or M71A or M72A. Course 105A is not requisite to 105B. Introduction to study of epistemology to train students to recognize different ways of knowing what we know. In life and human sciences, instruments and methods are used to study, measure, and experiment. Exploration of how they are manifest in technologies that cut across disciplines to help students evaluate explanatory models, standards of proof, and qualitative versus quantitative studies. Explorations may include DNA sequencing, tissue cultures, bioinformatics, statistics, photography and cinema, charts, trees, and databases. DNA sequencing is used to study gene functions, evolutionary patterns, and disease and plays role in legal context to reconstruct aspects of human history or to trace identity of people. Databases play role in life sciences in administrative, commercial, and legal contexts. Photography is used in sciences and medicine (e.g., X-ray photography), as well as in art and forensics. Letter grading.

**105B. Problems of Identity at Biology/Society Interface (4)** Lecture, three hours; discussion, one hour. Requisites: course 101 or Anthropology 1, or Life Sciences 4 and 23L, or 7C (each may be taken concurrently). Course 105A is not requisite to 105B. Exploration of problems of human identity that are inherently biological and social. Topics vary and may include race, obesity and nutrition, autism, deafness or disability, gender, intelligence, or sexuality. Topics contain set of intertwined problems so complex, so difficult to define, and so wrapped up in conceptions of what it is to be human, that it has spawned research from variety of perspectives in biological and human sciences. Students critically engage various intellectual perspectives—some competing, some complementary—that intersect on one particular topic. Examination of how researchers from social/historical and biological sciences construct topic as intellectual problem, methods they bring to bear on it, and findings they have produced. Letter grading.

**108. Human Biology, Genetics, and Society (5)** Lecture, three hours; laboratory, two hours. Limited to senior Human Biology and Society majors. Lectures, readings, discussions, and development of collaborative culminating project. Group-based research projects in mapping and staging contemporary controversy at intersections of human biology, genetics, and society. Reading of large amounts of material to make sense of both scientific concepts and social and political issues, with original research project and presentation required. Letter grading.

**110D. Posthumans (4)** (Same as African American Studies CM110D.) Seminar, three hours. Denaturalization of concept of human and with it uniquely western philosophical commitments that sustain imagined boundaries between human and non-human, modern and pre-modern, male and female, abled and disabled, chosen and condemned, indigenous and European, African and whiteness, religious and secular. Exploration of formation of human throughout long course of Euro-American intellectual history and its contemporary posthuman formations. Study is informed by range of theoretical work

that covers meaning of modernity, liberalism, inter-species relationships, critical race theory, conceptual problems in evolutionary biology, and public health. P/NP or letter grading.

**113. Ethical, Legal, and Societal Topics in Genetic Counseling (2)** (Same as Human Genetics CM113.) Lecture, two hours. Discussion of social, cultural, ethical, and legal issues in genetics and genetic counseling. Letter grading.

**120. Genetics and Human History (4)** Lecture, three hours. Enforced prerequisite: course 101 or Life Sciences 4. Advancements in genomic research have rapidly transformed traditional archaeological and historical investigations of human past. Drawing from recent research, focus on how genomic analysis has shed new light on old debates such as migration of *Homo sapiens* out of Africa, human interbreeding with Neanderthals, first migration to North America, ethnic expansions throughout Europe, and genetic legacy of historical figures such as Thomas Jefferson and Genghis Khan. Discussion of practical and theoretical issues surrounding genetic research on history of humans, including challenges of using ancient and modern DNA, population genetic theory, and ethical implications of genetic research for understanding ethnicity. Letter grading.

**121. Race, Science, and Citizenship (4)** Seminar, three hours. Early development of scientific method and systematic exclusion of those in subordinate social groups from scientific practice. Interrogation of binaries that prop up scientific knowledge construction, and consideration of how norms and values embedded in Western science compare with indigenous or local knowledge systems. How medical research is motivated by competing assumptions of racial hierarchy and equality. Examination of governments' use of science to classify racially inferior and contaminated foreigners as threats to sociocultural order. Exploration of how people use knowledge about their embodied experiences to demand rights and accept responsibility for their own health and vitality, either in opposition to or alliance with scientific experts. How contemporary developments in science and technology bring to light some central concerns of social and political theory. Letter grading.

**125. Critical Study of Health, Sickness, and Healing in Global Perspective (4)** (Formerly numbered 85.) Lecture, three hours; discussion, one hour. Introduction to sociocultural, historical, and global study of health and sickness. Use of case studies of globally important infectious and chronic diseases (diabetes, Ebola, HIV/AIDS) to analyze factors, including key dimensions of diversity (class, gender, urban/rural development) that influence how populations variably encounter, experience, understand, and cope with sickness. Special focus on relationships between Western medicine and traditional and alternative approaches to healing. Letter grading.

**126. Genes, Disease, and Culture (4)** (Same as Anthropology M126N.) Lecture, three hours; discussion, one hour (when scheduled). Introduction to genes, disease, and culture. Introduction to basic concepts in human genetics, expanding upon evolutionary genetic concepts learned in Anthropology 1, and survey of both inherited and infectious disease on global level. Wide range of topics include gene-culture co-evolution, niche construction theory, cultural perceptions of disease, cultural selection, biological and environmental determinism, and evolutionary origins of disease. Course is broken down into genes and genomes, Mendelian disease, complex disease, and infectious disease. Discussion of selected readings that integrate cultural perceptions with biological/genetic phenomena. P/NP or letter grading.

**130. Biotechnology and Society (4)** Lecture, three hours. Technical manipulation of living matter from humans, animals, and plants as scientific and social undertaking. How biotechnology came into existence. Questions, controversies, and changes that come with ability to make living technologies. Rise of engineering ideal in American biology. Biological modernism, ideas of immortality and technical suppression of death, molecularization of life, genetic engineering, food biotechnology, and control of reproduction. Practice and perception of living bodies as factories and machines. Changing economic and legal infrastructure of biological invention. Unfolding of contemporary social controversies concerning biotechnology. Letter grading.

**131. Data, Artificial Intelligence, and Algorithms in the Biosciences (4)** Lecture, three hours; discussion, one hour. Introduction to historical, ethical, and political aspects of data, artificial intelligence, and information in the biosciences. How data are produced, analyzed, and used in the biological and medical domains. How artificial intelligence (AI) or machine learning is being deployed in contemporary biosciences. Students learn to think at a high level about the values and goals of data, AI, and information practices; the political economy of data and AI; and some concrete details and practical limitations of these approaches. Letter grading.

**132. Food Cultures and Food Politics (5)** (Same as English M118F and Food Studies M132.) Lecture, four hours; discussion, one hour (when scheduled). Requisite: English Composition 3. Introduction to interdisciplinary field of food

studies, with focus on how literature, art, science writing, and visual culture address political dimensions of food and agriculture in specific contexts. P/NP or letter grading.

**133. Environmental Sociology (4)** (Same as Environment M133 and Sociology M115.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

**134. Food and Health in Global Perspective (4)** Lecture, three hours. Study problematizes and adds depth to common-sense understandings of healthy and unhealthy consumption by examination of relationship between food and health, from critical and holistic perspective, that accounts for interplay of biology and culture within broader historical, societal, and global contexts. Topics include what is meant by health, especially in terms of diet; relationship between food practices and evolutionary biology, as well as particular environments of societies, cultural systems, histories, and their health implications; how major global foods have come to their dominance and consequences for health; and influences of food production, distribution, and preparation on health. Letter grading.

**136. Eating Society: Science and Politics of Food from Individual to Planetary Health (4)** (Same as Food Studies M136 and Sociology M136.) Lecture, three hours; discussion, one hour. Questions of food and health are both individual and social. Students gain tools for understanding relationships between individual eaters, medicine, and social organization of food production and processing through set of research frameworks newly emergent in range of social and health sciences. Topics include individual and social ramifications of microbiome science; understanding how human gut microbes and health are shaped by pasteurization, processing, and food safety practices; One Health approaches that encompass human and animal health, discussing examples such as antibiotic resistance and emerging infectious disease as effects of large-scale agriculture; planetary health frameworks that link individual human metabolic health to issues of sustainable agriculture, for example how pesticides and fertilizers tie diets to environments; and resilience of cultural food systems in face of environmental pollution as issue of reproductive health. Letter grading.

**141. Nature versus Nurture: Genes and Environment (4)** Seminar, three hours. Comprehensive and practical examination of emerging science of gene-environment interaction. Discussion of primary components of field, including role of metabolic pathways in modifying environmental responses and importance of environmental influences in human disease. Exploration of selected hot topics in field such as importance of epigenetics and of microbiome. Course is highly useful for further study in medical field or public health. Letter grading.

**142. Primate Genetics, Ecology, and Conservation (4)** (Same as Anthropology M128S.) Seminar, three hours. Focus on genetic research on wild primates at different geographic scales, using readings from primary literature on primate genetics, ecology, and behavior. Study of paternity and kinship, intrapopulational variation, population genetics, biogeography, systematics, phylogenetics/phylogenomics and comparative genomics. Utility and appropriateness of various markers considered for different research questions, e.g., mitochondrial DNA, microsatellites, nuclear genes, Y-chromosome, as well as GWAS and genomic/next generation sequencing platforms, and epigenetic markers. Discussion of methods in fieldwork and lab work, including sampling techniques, collection techniques, wet lab techniques, software analysis packages, and statistical analyses. Introductory-level understanding of genetics expected; study further illuminates areas in molecular biology relevant to case studies analyzed. Letter grading.

**143. Amazon in Anthropocene (4)** (Same as Anthropology M128T.) Seminar, three hours. Consideration of major issues faced in Amazon region today using lenses of biology, geography, biological anthropology, primatology, cultural anthropology/ethnography, history, comparative literature, film studies, political science, and environmental science. Analysis of Amazon paleogeography and ecology over time to highlight charismatic species, biodiversity, and habitat types. Focus on human migration into Amazon, diversity of indigenous groups today, and historic/present interactions with environment. Study of European expeditions that carved out political boundaries within Amazon. Study of historic/current effects of human economy and land use on ecology. Exploration of changing power dynamics, inequity, and (un)sustainability of different cultural practices and technologies. Topics include rubber boom, indigenous resistance to oil exploration, hydroelectric dams and clean energy, deforestation arc, and international land grabs for soy plantations. Highlights value of different kinds of knowledge and expertise for interdisciplinary solutions for current crises in Amazon. Letter grading.

**144. Stress and Society: Biology and Inequality (4)** (Same as Sociology M144.) Lecture, three hours; discussion, one hour. Integrative view of health disparities, one of most pressing problems of society, through investigation of effects of socioeconomic status (SES) on health and disease, using specific lens of stress biology. Topics include introduction to fundamentals of physiology of stress, integration of literature on poverty and SES with studies on physiological consequences of poverty, and introduction of concepts of life course by following stress biology through childhood development and into adulthood. Letter grading.

**146. Evolution in Anthropocene (4)** Lecture, three hours; discussion, one hour. Recommended requisites: Life Sciences 7A, 7B, 7C. Study of evolution across world and tree of life that is being altered at incredible pace by humans. Exploration of incredible stories of surprising, amazing, sometimes heart-breaking ways humans are changing life, and how these things alter human culture, fashion trends, and history. Exploration of footprint that humans are leaving on other species, and astounding ways they have altered their evolutionary course to keep pace. Letter grading.

**150XP. Science, Mass Incarceration, and Accountability (4)** Lecture, three hours; discussion, one hour. Analysis of historical legacies of incarceration and its many intersections with science, and how incarceration exacerbates inequities within health and longevity. Learning about the ways that science has advanced or profited off mass incarceration and working with community partners are fundamental steps towards rebuilding the relationship between science and public safety and accountability. Incorporates community engagement, guest speakers, and laboratory-style meetings. Students pivot from acting as individuals to working as part of a team to make small and humble steps towards bending the arc of history away from structural racism and towards more robust systems of accountability. Letter grading.

**157. Biology of Superheroes: Exploring Limits of Form and Function (4)** (Same as Ecology and Evolutionary Biology M157.) Lecture, four hours; discussion, one hour. Requisites: Life Sciences 1 and 4, or 7A and 7B. Combines topics posed in popular graphic novels, movies, and television with primary scientific literature to explore bizarre phenomena in natural world and delve into basic scientific theory and principles. Topics covered include evolution, genetics, physiology, biomechanics, brain-machine interfacing, and artificial intelligence among others. Students synthesize primary literature on diverse subjects presented. Letter grading.

**160. Politics of Heredity (4)** Seminar, three hours. Exploration of intersection of politics and genetics in liberal democracies and totalitarian regimes. How genetics has been used to consolidate and undermine political authority, and how political authority has been employed to both promote and restrict genetics. Consideration of several historical episodes such as rise to power in Soviet Union of T.D. Lysenko, peasant agronomist who rejected Mendelism in favor of quasi-Lamarckian approach to genetics; participation of geneticists in creation of racial state in Nazi Germany; and debates over compulsory sterilization of mental defectives in U.S., Canada, and Europe from 1920s to 1940s. Contemporary cases such as controversies over genetically modified foods and regulation and governance of reprogenetic technologies, and rise of disease advocacy groups as important players in determining funding and direction of genetic research. Letter grading.

**161. Controversy and Behavior Genetics (4)** Seminar, three hours. Behavior genetics is controversial and seeks genetic links to intelligence, personality, mental illness, and criminality, among many other traits. It explores differences between individuals, men and women, or racial groups, and what social policies might do about those differences. Analysis of causes and effects of controversy in behavior genetics using critical sociology and history. Consideration of scientific disputes between behavior geneticists and their critics, distinctive history and social organization of behavior genetics as group of scientists, and public reception of behavior genetics and disputes about its social and policy implications. Letter grading.

**162. Biotechnologies, Law, and Body (4)** Seminar, three hours. Notions of bodily integrity, privacy, right to life, and to choose to die have created perception that our bodies are protected by law, that somehow we possess ownership and control over our bodies, encompassing not only our physical being but intangible information contained within our materialized forms. Question of whether these rights to our own bodies exist and are secured by common and Constitutional law, in light of recent developments in biotechnology. Introduction to political and legal discourse of rights. Historical perspective of how law and policy have treated our bodies. Legal and policy issues emerging from new biotechnological developments. Examination of reproductive issues, including abortion, assisted reproduction, disputes regarding disposition of embryos, preimplantation genetic testing, cloning, and genetic enhancements. Letter grading.

**163. Science and Popular Movements: Controversy, Conflict, and Collaboration (4)** Seminar, three hours. Historical and philosophical analysis of myth of separation of science and people. Controversies in genetics and biotechnology, medical research, and environmentalism show examples of popular science where scientists and nonscientists interact in surprising ways: when nonscientists challenge scientists' authority and knowledge, where scientists act like social movement, and where scientists and regular people work together, sometimes cooperatively and sometimes competitively, to generate knowledge. Consideration of some implications and contradictions for politics and knowledge production that emerge from popular science. Letter grading.

**164. Ethics in Health and Research (4)** Lecture, three hours. Recommended requisite: course 102. How should life-saving organs be allocated in context of scarcity? What happens when doctor disagrees with patient on best treatment? Should researchers be allowed to experiment on human beings? Although medicine has always been faced with life-or-death decisions, new challenges arise in light of dramatic advances of biomedicine in 21st century. New possibilities for cures come with new moral issues. Biomedical research is full of promises, yet faces many ethical difficulties. Examination of complexity of decision making in bioethics by articulating point of views of all actors engaged in those decisions at local and international levels? doctors, nurses, patients, families, health policymakers, researchers, and citizens. Focus on case studies with reliance on philosophical essays and material from contemporary media. Letter grading.

**165. Introduction to Bioethics (4)** Lecture, three hours. Should one be allowed to choose sex of babies or whether they will be tall enough to be next basketball star? Should terminally ill be helped to die? Do human embryos have moral status? Examples of ethical questions that arise in light of dramatic advances of biomedicine in 21st century. While new knowledge and biotechnology give rise to great possibilities for improving care and finding cures, they also create new moral dilemmas and challenge us to redefine what is good life or family. Introduction to field of bioethics, with focus on case studies that rely on contemporary essays in philosophy and material from contemporary media. Letter grading.

**166. Health-Care Ethics (4)** (Same as Disability Studies M166.) Lecture, three hours; discussion, one hour. Consideration of critical ethical concepts as they apply to health-care practice, medical decision-making, and medical technology development and use. Consideration of concepts drawn from philosophy, literature and culture, and political history including freedom, equality, justice, vitality, knowledge, kinship, mercy, illness, and disability. Examination of how concept of human dignity should shape health-care decisions such as physician-aided dying or selective abortion; proper relationship between history and concept of human rights and distribution of medical resources; how political and ethical category equality should structure development and use of genetic editing; how health-care concept of patient autonomy relates to political concept of liberty or freedom; how to evaluate good life, or what philosophers call flourishing, in medical treatment decisions for individuals or development of therapies. P/NP or letter grading.

**174. What's Wrong with Science? (4)** Lecture, three hours; discussion, one hour. Recommended requisite: course 105A. Exploration of tangled issues linking science to contemporary post truth crisis. Drawing on ideas and frameworks from sociology, philosophy, anthropology, political psychology, and science and technology studies, consideration of range of materials including theoretical and empirical academic texts as well as commentaries and documents speaking to current events. Consideration of demarcation of science from pseudoscience, conditions turning scientific disagreement into public controversy, science's relationship to different publics and political cultures, crises of trust in contemporary science and efforts to reconstruct scientific integrity, and weaponization of science and pseudoscience in misinformation campaigns and conspiracy theories. Through engaging these complex matters, students become better armed to understand and advance productive relationships between science and political life. Letter grading.

**175. Current Directions in Social and Historical Study of Science (4)** Seminar, three hours. Preparation: some familiarity with field of science and technology studies. Investigation of recent work in history and social study of science and technology, with special emphasis on recent developments, possible future directions, and questions of disciplinarity and interdisciplinarity. Topics may include histories of recent and emerging science; biocapital, biocitizenship, biosecurity, and/or biopolitics; social and historical approaches to finance and money; and social and historical approaches to risk, preparedness, and safety. Letter grading.

**180. Special Courses in Society and Genetics (4)** Lecture, three hours. Departmentally sponsored experimental or temporary courses on selected topics, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

**183. Being Human: Identity and Mental Illness (5)** (Same as Disability Studies M183 and Honors Collegium M183.) Seminar, three hours. Exploration of relationship between identity and mental illness through different approaches to nature and treatment of mental disorder, from biomedical accounts of brain-based pathology (and identity) to Mad Pride movement emphasis on mental diversity. Enduring philosophical questions regarding personal identity, consciousness, selfhood and mind-body relationship are investigated through consideration of conditions such as dissociative identity disorder, trauma, psychosis, autism, and depression. P/NP or letter grading.

**188. Special Courses in Society and Genetics (4)** Seminar, three hours. Departmentally sponsored experimental or temporary courses on selected topics, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**190. Research Colloquia in Society and Genetics (1)** Seminar, one hour. Limited to juniors/seniors. Designed to bring together advanced undergraduate students undertaking faculty-supervised tutorial research to discuss their own work or related work in society and genetics. May be repeated once for credit with topic change. P/NP grading.

**191. Variable Topics Research Seminars: Perspectives in Society and Genetics (5)** Seminar, three hours. Enforced requisites: courses 101 (or Life Sciences 4), M102. Discussion of genetics and society from historical perspective. How science of genetics itself is deeply social. Study of how biologists and anthropologists have conceptualized relations of genes and (social) environment. Reading of accounts of human nature, human flourishing, and dignity that seem to privilege nature as something that can guide ethical thought and action. How these accounts would encourage or discourage people from manipulating their genetic inheritance. Consideration of what is new in new genetics. Current discussions of promise and peril of genetics in relation to society. Culminating paper required. May be repeated once for credit with topic change. Letter grading.

**191R. Capstone Seminar: Human Biology and Society (5)** Seminar, three hours. Enforced requisites: courses 105A, 105B. Students bring their accumulated interdisciplinary knowledge and methodological tools to bear on one contemporary problem at intersection of biology and society. Student peers, whose major studies fall within different concentrations, share and learn from each others' multiple perspectives while working together on one topic presented in class. Topics vary and come from major concentrations. Culminating project is team writing assignment, such as grant proposal, report to Congress on contemporary issue, or business plan for new kind of company or nonprofit firm addressing issues in human biology and society. Letter grading.

**191S. Capstone Seminar: Society and Genetics (5)** Seminar, three hours. Enforced requisites: courses 101 (or Life Sciences 4), M102. Discussion of genetics and society from historical perspective. How science of genetics itself is deeply social. Study of how biologists and anthropologists have conceptualized relations of genes and (social) environment. Reading of accounts of human nature, human flourishing, and dignity that seem to privilege nature as



something that can guide ethical thought and action. How these accounts would encourage or discourage people from manipulating their genetic inheritance. Consideration of what is new in new genetics. Current discussions of promise and peril of genetics in relation to society. Culminating paper required. May be repeated once for credit with topic change. Letter grading.

**193. Journal Club Seminars: Society and Genetics (1)** Seminar, one hour. Limited to undergraduate students. Discussion of topics related to guest speaker series. May be repeated for credit. P/NP grading.

**195CE. Community and Corporate Internships in Society and Genetics (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. Individual contract with supervising faculty member required. Letter grading.

**196. Research Apprenticeship in Society and Genetics (2)** Tutorial, six hours. Limited to juniors/seniors. Entry-level research opportunities in society and genetics under guidance of faculty mentor. May be repeated for maximum of 4 units. Individual contract required. P/NP or letter grading.

**197. Individual Studies in Society and Genetics (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter (paper or other product) required. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Society and Genetics (2 to 4)** Tutorial, six to 12 hours. Preparation: submission of written proposal outlining study or research to be undertaken due to undergraduate adviser for department approval. Studies to involve laboratory research, not primarily literature surveys or library research. Proposal to be developed in consultation with instructor. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other juniors/seniors may enroll only with department faculty sponsors. Supervised individual research under guidance of faculty mentor. At end of term culminating paper describing progress of project and signed by student and instructor must be presented to department. May be repeated for credit. Individual contract required. Letter grading.

# Sociology

## Sociology Courses

### Lower Division

**1. Introductory Sociology (5)** Lecture, four hours; discussion, one hour. Survey of characteristics of social life, processes of social interaction, and tools of sociological investigation. P/NP or letter grading.

**5. Social Organization of Black Communities (5)** (Same as African American Studies M5.) Lecture, four hours; discussion, one hour; field trips. Analysis and interpretation of social organization of black communities, with focus on origins and development of black communities, competing theories and research findings, defining characteristics and contemporary issues. Letter grading.

**10. Social Thought and Origins of Sociology (5)** Lecture, three hours; discussion, two hours. Introduction to history of social thought, with special emphasis on theoretical precursors to development of discipline of sociology. Exposition and analysis of selected social theorists and concepts, especially from the 17th to 19th centuries. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Sociological Research Methods (5)** Lecture, three hours; discussion, one hour. Introduction to methods used in contemporary sociological research, with focus on issues of research design, data collection, and analysis of data. Fieldwork may be required. Letter grading.

**40. American Racism: Psychosocial Analysis (5)** Lecture, four hours; discussion, one hour. Examination of long-standing history of American racism, beginning with institution of slavery, Jim Crow legislation, separate but equal doctrine, Brown versus Board of Education, Civil Rights legislation of 1960s, and Obama presidency. Focus on persistence over time of racist beliefs and mechanisms through which racism becomes passed on from one generation to next. Racism toward African Americans and harms it has inflicted on African American community, as well as on nation as whole. Examination of psychology and sociology of racism through video clips, social scientific texts, essays by prominent American humanists, and American literature that deals centrally with racism. P/NP or letter grading.

**51. Sociology of Migration (5)** Lecture, three hours; discussion, one hour. Introduction to fundamental theories, themes, and research methods used in sociological research through comparative study of international migration. Examination of theoretical debates and empirical analysis of causes and consequences of transnational migration in countries of origin and destination, with focus on issues of race, ethnicity, social networks, development, citizenship, and state in comparative context. Letter grading.

**72A. Sex from Biology to Gendered Society (6)** (Same as Communication M72A, Clusters M72A, and Society and Genetics M72A.) Lecture, three hours; discussion, two hours. Course M72A is enforced requisite to M72B, which is enforced requisite to M72CW. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72B. Sex from Biology to Gendered Society (6)** (Same as Communication M72B, Clusters M72B, and Society and Genetics M72B.) Lecture, three hours; discussion, two hours. Enforced requisite: course M72A. Limited to first-year freshmen. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. Letter grading.

**72CW. Sex from Biology to Gendered Society: Special Topics (6)** (Same as Communication M72CW, Clusters M72CW, and Society and Genetics M72CW.) Seminar, three hours. Enforced requisite: course M72B. Limited to first-year freshmen. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics Research Seminars: Sociology (4)** Seminar, three hours. Requisite: course 1. Designed for freshman/sophomores. Study of selected topics in sociology at introductory level. May be repeated for credit. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Development of Sociological Theory (5)** Lecture, three hours; discussion, one hour. Comparative survey of basic concepts and theories in sociology from 1850 to 1920. P/NP or letter grading.

**102. Contemporary Sociological Theory (5)** Lecture, three hours; discussion, one hour. Requisite: course 101. Critical examination of significant theoretical formulations from 1920 to present. P/NP or letter grading.

**106A. Field Research Methods I (6)** Lecture, two hours; discussion, two hours; fieldwork, eight to 10 hours. Research practicum in which students write field notes on their experiences in and observations of intensive internship field placement. Readings focus on fieldwork roles and relations, observing and describing, writing field notes, field interviewing, ethical issues, and preliminary data analysis. Fieldwork and extensive field notes required. Letter grading.

**106B. Field Research Methods II (6)** Lecture, two hours; discussion, two hours; fieldwork, 10 hours. Requisite: course 106A. Collection and analysis of both field notes and unstructured interview data from student field placement. Use of techniques of qualitative data analysis, including qualitative coding, analytic memoing, and grounded theory methods, to analyze these materials and to write ethnographic paper. Letter grading.

**110. Comparative and Historical Methods (4)** Lecture, three hours; discussion, one hour. Recommended requisite: course 101. Introduction to range of comparative and historical methods alongside broader questions and issues in this area of sociology. Students learn about using theories to analyze real-world cases; making comparisons between societies and other social units; developing sociological explanations for historical events; and generalizing about social patterns and changes over time. P/NP or letter grading.

**111. Social Networks (4)** Lecture, three hours; laboratory, one hour. Analysis of how social networks create social structure, how social actors utilize them, and their unexpected effects. Topics include job search, firm efficiency, and social movements. Visualization programs, computer simulations, and research project. P/NP or letter grading.

**112. Introduction to Mathematical Sociology (4)** Lecture, three hours; laboratory, one hour. Requisites: Mathematics 2, 3A (course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus), Statistics 10. Mathematical treatment of several sociological phenomena, such as occupational mobility, population growth, organizational structure, and friendship patterns, each covered in some detail, including initial development and subsequent evaluation and modification (emphasizing both deductive and computational aspects of mathematics). Letter grading.

**113. Statistical and Computer Methods for Social Research (4)** Lecture, three hours; laboratory, one hour. Requisite: Statistics 10. Continuation of Statistics 10, covering more advanced statistical techniques such as multiple regression, analysis of variance, or factor analysis. Content varies. Students learn how to use computer and write papers analyzing prepared data sets. P/NP or letter grading.

**114. Social Data Science (4)** Lecture, three hours; discussion, one hour. Data analysis, and way social theory and data are linked. Covers data and computing environment, regression analysis, causal analysis, and machine learning. Offers tools for conducting quantitative analyses of social phenom-

enon, including emerging computational methods. Integrates substance and method. Draws on literature in social inequality to demonstrate applications of studied methods. P/NP or letter grading.

**115. Environmental Sociology (4)** (Same as Environment M133 and Society and Genetics M133.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

**116. Social Demography (4)** Lecture, three hours; discussion, one hour. Studies of past, present, and future trends in population growth. Sociological theories of causes and consequences of population growth and redistribution. Emphasis on correlates of fertility, mortality, and migration. P/NP or letter grading.

**117. Family Demography (4)** Lecture, three hours; discussion, one hour. Examination of demographic behaviors, such as marriage, divorce, and child-bearing, associated with family and household organization. Sociological approach to understanding causes and consequences of trends and differentials in family formation and dissolution. P/NP or letter grading.

**118. Simulating Society: Exploring Artificial Communities (5)** (Same as Honors Collegium M148.) Seminar, three hours; computer laboratory, one hour. Examination of social behavior through computer simulations of behavior in artificial communities. P/NP or letter grading.

**119. Primate Societies (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Selected topics on diverse behaviors and cultural forms of primate cousins, with special focus on baboons, chimpanzees, and gorillas. Examination of primate socioecology, sexual competition, demography and kinship, politics, communication, and interactions within and between groups. Implications for our lives as human primates. P/NP or letter grading.

**120. Disability Rights Law (4)** (Same as Disability Studies M149.) Lecture, four hours. Examination of disability-related issues impacting people of all ages across wide spectrum of settings in both public and private sectors—from preschool to higher education, from military to workplace, and from intensely urban environments to online and virtual worlds. Topics range from persistent and recurring disputes to novel controversies fueled by new technologies and changing times. P/NP or letter grading.

**121. Sociology of Religion (4)** Lecture, three hours; discussion, one hour. Examination of classic and contemporary work in social scientific study of religion. Analysis of definition of religion, role of religion in modern life, and role of categories like Islam in contemporary U.S. politics. Focus on complicated question of what it means to say someone or something is religious: does that mean they are moral, believe in God, or are part of community of believers? Students gain better sense of how to think and talk about religion. P/NP or letter grading.

**122. Sociology of Violence (4)** Lecture, three hours; discussion, one hour. Exploration of macro-, meso-, and micro-level theories of violence, why states organize violence, why civilizations participate in violence, and physical, structural, and symbolic violence. Discussion of how various social categories such as race, ethnicity, religion, class, gender, and sex are implicated in violence and examination of cases of interstate war, genocide, civil war, terrorism, and pogroms from around world.

**123. Social Change (4)** Lecture, three hours; discussion, one hour. How does social change occur? This question is linked to fundamental debates in sociology about structure (degree to which individual's actions are constrained by social forces) and agency (degree to which individuals can choose their own courses of action). Major theories (Marxist, Weberian, demographic, and strategic action) of social change take different views of structure and agency. Consideration of these theoretical issues in context of social change by considering empirical examples. P/NP or letter grading.

**CM124A. Conversational Structures I (4)** (Formerly numbered M124A.) (Same as Communication M144A.) Lecture, three hours; discussion, one hour. Introduction to various structures employed in organization of conversational interaction, such as turn-taking, action sequencing, and repair. Concurrently scheduled with course C244A. P/NP or letter grading.

**124B. Conversational Structures II (4)** (Same as Communication M144B.) Lecture, three hours; discussion, one hour. Requisite: course M124A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations. P/NP or letter grading.

**CM125. Talk and Social Institutions (4)** (Same as Communication M125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in number of major institutional sites

in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. Concurrently scheduled with course C258. P/NP or letter grading.

**126. Study of Norms (4)** Lecture, three hours; discussion, one hour. Properties of norms, of normatively governed conduct, of lay and professional methods for describing, producing, using, and validating norms in contrasting settings of socially organized activities; relevance of these properties for programmatic problems of analytic sociology. Fieldwork required. P/NP or letter grading.

**127. Mind and Society (4)** Lecture, two and one half hours; discussion, one hour. Requisite: course 1. Study of social production of modes of thought and forms of knowledge. Study of ways in which bodies of knowledge and cognitive styles are produced, used, and transformed in everyday, organizational, and extraordinary contexts. P/NP or letter grading.

**128. Sociology of Emotions (4)** Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Sociological theories and explanations of social conditions shaping and producing emotional experiences; effects of individual expression of emotions on social conditions; relations between thought, sensations, and emotions; self and emotions; social construction of emotions. P/NP or letter grading.

**129. Sociology of Time (4)** Lecture, three hours; discussion, one hour. Conceptualizations of time seen from scientific, philosophical, historical, and sociological perspectives; cyclical and linear time in primitive, ancient, and medieval societies; ritual, the sacred, and experience of the eternal; structuring of urban, modern, and postmodern societies by clock, calendar, and schedule; future value orientation and notion of progress; time, labor, and social domination. P/NP or letter grading.

**130. Self and Society (4)** Lecture, three hours; discussion, one hour. Examination of social processes shaping experience, definition, and enactment of self and personal identity. P/NP or letter grading.

**131. Careers in Sociology (4)** Lecture, three hours. Limited to juniors/seniors. Examination of possible career paths for Sociology majors, including such fields as business, nonprofit sector, government, healthcare, entertainment, and other areas. Development of career-relevant materials and skills. Letter grading.

**132. Social Psychology: Sociological Approaches (4)** Lecture, three hours; discussion, one hour. Survey of contribution of sociologists to theory and research in social psychology, including theories of social control; conformity and deviation; reference groups; and interaction process. P/NP or letter grading.

**133. Collective Behavior (4)** Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Characteristics of crowds, mobs, publics, social movements, and revolutions; their relation to social unrest and their role in developing and changing social organization. P/NP or letter grading.

**134. Culture and Personality (4)** Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Theories of relation of variations in personality to culture and group life, in primitive and modern societies, and influence of social role on behavior. P/NP or letter grading.

**135. Sociology of Body (4)** Lecture, three hours; discussion, one hour. Examination of body as social construction that is situated within particular social and historical context. Students gain understanding of how bodies become gendered, raced, classed, and sexualized in ways that create and reinforce social institutions and relations of power. Analysis of reciprocal processes of structuration: how body is shaped by social expectations and symbolic exchange, how meanings are attached to bodies and different body parts, and how these interpretations in turn shape social relations. Critical evaluation of embodiment experience, and contribution of sociological theories and data to understanding this process. P/NP or letter grading.

**136. Eating Society: Science and Politics of Food from Individual to Planetary Health (4)** (Same as Food Studies M136 and Society and Genetics M136.) Lecture, three hours; discussion, one hour. Questions of food and health are both individual and social. Students gain tools for understanding relationships between individual eaters, medicine, and social organization of food production and processing through set of research frameworks newly emergent in range of social and health sciences. Topics include individual and social ramifications of microbiome science; understanding how human gut microbes and health are shaped by pasteurization, processing, and food safety practices; One Health approaches that encompass human and animal health, discussing examples such as antibiotic resistance and emerging infectious disease as effects of large-scale agriculture; planetary health frameworks that link individual human metabolic health to issues of sustainable agriculture, for example how pesticides and fertilizers tie diets to environments; and resilience of cultural food systems in face of environmental pollution as issue of reproductive health. Letter grading.

**137. Historical Sociology of Urban/Rural Relations and Food Production (4)** (Same as Food Studies M167.) Lecture, three hours; discussion, one hour. Historical examination of food supply and food production in relation to urban and rural regions. Topics include food logistics such as storage, transportation, and distribution, as well as human population growth and migration, famine and hunger, and agricultural advances and environmental impacts. P/NP or letter grading.

**138. Death, Dying, and Afterlife (4)** (Formerly numbered M138.) Lecture, three hours; discussion, one hour. Social analysis of social inequities in death, understanding of what constitutes good death, how we make sense of bad deaths, how to dispose of death, and what constitutes appropriate grieving. Death remains at foundation of discipline of sociology. Suicide does not occur randomly but is stratified according to social factors such as age, gender, race, sexual orientation, and class. Review of strength of sociological argument and evaluation of explanatory potential of different theories to make sense of death. Examination of historic and contemporary studies to examine how research and conceptualizations of death and dying have changed, and social responses to these phenomena. P/NP or letter grading.

**139. Asian Community: Border-Crossing, Diasporic Formation, and Social Transformation (4)** (Same as Asian American Studies M179.) Lecture, three hours; discussion, one hour. Exploration of critical issues facing broad Asian community, in context of globalization and international migration, through social science lens of migration studies and diaspora studies. Examination of how movements of people, ideas, capital, and goods create new trends and patterns of diasporic formation, integration, and social transformation at individual, group, and societal levels in non-Western contexts. Students engage in intellectually stimulating discussions and debates on immigration and immigrant integration in Asian world; and on anxieties, tensions, conflicts, and accommodation in age of globalization. Students also discuss challenges, possibilities, and opportunities of building cohesive Asian community. P/NP or letter grading.

**140. Negotiating Medical Care: Physician-Patient Conversations (4)** Lecture, three hours; discussion, one hour. Overview of how physician-patient interaction influences kinds of treatment patients receive. Focus on routine primary care medical visits and study of how some of our most significant health-care epidemics are affected by communication that takes place in these everyday medical visits. Topics include how communication between clinicians and patients has changed over years, normative structure of medical visit, and how communication adds to series of public health problems currently faced. Students learn how to analyze actual interactions between physicians and patients with hands-on exercises to give them tools to examine these conversations. P/NP or letter grading.

**141A. Migration and Labor in Mexico-U.S. Context (5)** Seminar, 20 hours. Mexico-U.S. migration is largest and oldest continuous international population flow of contemporary world. In recent decades, prompted by swift economic transformations, rural and urban Mexicans from every corner of Mexico have joined this migratory flow, settling well beyond southwestern region and into far-reaching areas of U.S. interior. Migration is binding U.S. and Mexico stronger than ever, putting this complex and multilayered phenomena at top of bilateral agenda. Examination of sociological dynamics of international migration and labor as they apply to Mexico-U.S. context, including demographic, political, and economic dynamics of migration, economic and social infrastructures that support cross-border mobility, and connections of migration with binational, national, regional, and local labor markets. Comparative insights to contrast this flow with other contemporary population streams. Offered in summer only. Letter grading.

**141B. Migration and Labor in Mexico-U.S. Context: Research Seminar (5)** Seminar, 10 hours; fieldwork, 10 hours. Development of qualitative micro-study and research paper on migration and labor in Mexico-U.S. context. Research topic of interest to be selected so students become familiar with commonly employed qualitative methods of research. Designed to help students understand basics of methodological reasoning, how to formulate research questions, and how to frame and investigate one particular issue related to migration and labor. How to make ethical decisions about conducting research. Development of student abilities as researchers by conducting secondary and primary research culminating in final research paper to be presented to faculty members and peers. Offered in summer only. Letter grading.

**143. Human Health and Society (4)** Lecture, three hours; discussion, one hour. Requisites: courses 1, 20, 101. Exploration of long-run historical trends in relationship between human health and social organization, drawing on historical, anthropological, demographic, and sociological concepts, theories, and data. P/NP or letter grading.

**144. Stress and Society: Biology and Inequality (4)** (Same as Society and Genetics M144.) Lecture, three hours; discussion, one hour. Integrative view of health disparities, one of most pressing problems of society, through investigation of effects of socioeconomic status (SES) on health and disease, using

specific lens of stress biology. Topics include introduction to fundamentals of physiology of stress, integration of literature on poverty and SES with studies on physiological consequences of poverty, and introduction of concepts of life course by following stress biology through childhood development and into adulthood. Letter grading.

**145. Sociology of Deviant Behavior (4)** Lecture, three hours; discussion, one hour. Examination of leading sociological approaches to study of deviation and general survey of major types of deviation in American society. P/NP or letter grading.

**147A. Sociology of Crime (4)** Lecture, three hours; discussion, one hour. Sociological theories of social origins, organization, and meanings of crime and criminal behaviors. P/NP or letter grading.

**147B. Sociology of Criminal Justice (4)** Lecture, three hours; discussion, one hour. Examination of structures and routine decision-making processes of key criminal justice institutions, including police, courts, probation and parole, jails and prisons. P/NP or letter grading.

**148. Sociology of Mental Illness (4)** (Same as Disability Studies M148.) Lecture, three hours; discussion, one hour. Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of mental illness. P/NP or letter grading.

**149. Youth, Trouble, and Juvenile Justice (4)** Lecture, three hours; discussion, one hour. Examination of processes through which youth become involved in juvenile justice system. Analysis of this system as people-processing and people-changing institution as context for considering critical issues in juvenile justice. P/NP or letter grading.

**150. Sociology of Aging (4)** (Same as Gerontology M150.) Lecture, three hours; discussion, one hour. Study of sociological processes shaping definition, experience, and response to aging in contemporary society. Topics include race, class, and gender in aging over life course; interpersonal relations and social worlds of aged; caregiving relations and institutions; professions concerned with aged and aging. Letter grading.

**151. Comparative Immigration (4)** Lecture, three hours; discussion, one hour. Survey of immigration of Europeans, Asians, and Hispanics to the U.S. since the mid-19th century. Overview of immigration experience on ethno-racial groups that migrated voluntarily to this country, with emphasis on immediate postimmigration settlement. P/NP or letter grading.

**152. Comparative Acculturation and Assimilation (4)** Lecture, three hours; discussion, one hour. Prerequisite: course 151. Comparison of acculturation and assimilation of Europeans, Africans, Mexicans, and Asians in the U.S., with emphasis on long-term cultural consequences of immigration. P/NP or letter grading.

**153. Chinese Immigration (4)** (Same as Asian American Studies M130C.) Lecture, three hours; discussion, one hour. Survey of sociological studies of Chinese immigration, with focus on international context, organization, and institutions of Chinese America and its interactions with social environment. P/NP or letter grading.

**154. Race and Ethnicity in Latin America (4)** Lecture, three hours; discussion, one hour. Role of race and ethnicity in political, economic, and social lives of Latin American nations. P/NP or letter grading.

**155. Latinos in U.S. (4)** (Same as Chicana/o and Central American Studies M155A.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of history and social conditions of Latinos in Los Angeles as well as nationally, with particular emphasis on their location in larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

**156. Race and Ethnicity in American Life (4)** Lecture, three hours; discussion, one hour. Role of race and ethnicity in the U.S., including interplay between racial and ethnic structures and meanings. Special attention to comparison of African American and European American experiences and to transformation of Asian American and Latino communities and the nation generally, wrought by renewal of mass migration in second half of the 20th century. P/NP or letter grading.

**157. Social Stratification (4)** Lecture, three hours; discussion, one hour. Analysis of American social structure in terms of evaluational differentiation. Topics include criteria for differentiation, bases for evaluation, types of stratification, composition of strata and status systems, mobility, consequences of stratification, and problems of methodology. P/NP or letter grading.

**158. Urban Sociology (4)** Lecture, three hours; discussion, one hour. Description and analysis of urbanization and urbanism in the U.S. and world. P/NP or letter grading.

**161. Comparative American Indian Societies (4)** (Same as American Indian Studies M161.) Lecture, three hours. Prerequisite: course 1 or American Indian Studies M10. Comparative and historical study of political, economic, and cultural change in indigenous North American societies. Several theories of social change, applied to selected case studies. Letter grading.

**162. Sociology of Gender (5)** (Same as Gender Studies M162.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 1 or Gender Studies 10. Examination of processes by which gender is socially constructed. Topics include distinction between biological sex and sociological gender, causes and consequences of gender inequality, and recent changes in gender relations in modern industrial societies. P/NP or letter grading.

**163. Gender and Work (4)** (Same as Gender Studies M163.) Lecture, three hours. Prerequisite: course 1 or Gender Studies 10. Exploration of relationship of gender to work, concentrating on the U.S. experience but also including some comparative material. Particular emphasis on analysis of causes and consequences of job segregation by gender and of wage inequality. P/NP or letter grading.

**164. Politics of Reproduction and Everyday Life (4)** (Same as Gender Studies M164.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Social and human reproduction is global policy issue. Government efforts to influence reproduction are important feature of modern state: political intervention into private life, intimacy, and sexuality. Exploration of politics of reproduction—intersection between politics and life cycle or between public sphere and private lives—and coverage of broad range of issues addressing prevention and promotion of reproduction from historical-comparative approach. Reading, discussion, and development of culminating project. P/NP or letter grading.

**165. Sociology of Race and Labor (4)** (Same as African American Studies M165 and Labor Studies M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

**168. Organizations and Society (4)** Lecture, three hours; discussion, one hour. Sociological analysis of organizations and their social environment. Introduction to basic theories, concepts, methods, and research on behavior of organizations in society. P/NP or letter grading.

**169. Law and Society (4)** Lecture, three hours; discussion, one hour. Specific topics may include law in preindustrial and industrialized societies, legalization of contemporary social relations, participants' experiences of legal processes, lay perceptions of justice, social movements toward equal justice, roles of lawyers and judges, social impact of court decisions. P/NP or letter grading.

**170. Medical Sociology (4)** Lecture, three hours; discussion, one hour. Prerequisite: course 1. Provides majors in Sociology and other social sciences, as well as students preparing for health sciences careers, with understanding of health-seeking behavior and interpersonal and organizational relations that are involved in receipt and delivery of health services. P/NP or letter grading.

**171. Occupations and Professions (4)** Lecture, three hours; discussion, one hour. Description and analysis of representative occupations and professions, with emphasis on contemporary U.S. P/NP or letter grading.

**172. Entrepreneurship (4)** Lecture, three hours; discussion, one hour. Description and analysis of entrepreneurship, with special reference to historical origins, ideology, international comparisons, women and ethnic minority participation, legal and illegal forms, public and private auspices. P/NP or letter grading.

**173. Economy and Society (4)** Lecture, three hours; discussion, one hour. Sociology of economic life, with emphasis on principal economic institutions of the U.S. P/NP or letter grading.

**174. Sociology of Family (4)** (Same as Gender Studies M174.) Lecture, three hours; discussion, one hour. Theory and research dealing with modern family, its structure, and functions, including historical changes, variant family patterns, family as institution, and influence of contemporary society on family. P/NP or letter grading.

**175. Sociology of Education (5)** (Same as Education M108.) Lecture, four hours; discussion, one hour. Study of how U.S. educational system both promotes socioeconomic opportunities and maintains socioeconomic inequalities: historical and theoretical perspectives on role of education in U.S. society; trends in educational attainment; ways in which family background, class, race, and gender affect educational achievement and attainment; strat-

ification between and within schools; effects of education on socioeconomic attainment, family, health, attitudes, and social participation; educational policies to improve school quality and address socioeconomic inequalities. Letter grading.

**176. Sociology of Mass Communication (4)** (Same as Communication M147.) Lecture, four hours; discussion, one hour (when scheduled). Studies in relationship between mass communication and social organization. Topics include history and organization of major media institutions, social forces that shape production of mass media news and entertainment, selected studies in media content, and effects of media on society. P/NP or letter grading.

**178. Sociology of Caribbean (4)** (Same as African American Studies M178.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Historical sociology of Caribbean, with emphasis on colonialism and decolonization, development and underdevelopment, race-making institutions and evolution of race relations, nationalism and migration. P/NP or letter grading.

**180A. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**180B. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**180C. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**180D. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**180E. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**180F. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**180G. Special Topics in Sociology (4)** Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

**181A. Sociology of Global China (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Analyses of how domestic developments create impetus for China's global expansion, and assessment of global China's variegated and uneven consequences. Concrete case studies include Belt and Road Initiative, soft power and cultural diplomacy, internal colonization of Hong Kong and Xinjiang, China in Africa, U.S.-China trade war, and New Cold War. P/NP or letter grading.

**181B. Sociology of Contemporary China (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Survey of changes in Chinese society from beginning of 20th century to present. Topics include social mobility and inequality, family and household, and population. Emphasis on changes post-Reform Era and in present. Focus on interaction of economic and political change plus family organization. Contrasts and similarities between China and West, China's place in social sciences, and challenges due to social organization that originated from studying Western societies. May be taken independently for credit. P/NP or letter grading.

**182. Political Sociology (4)** Lecture, three hours; discussion, one hour. Contributions of sociology to study of politics, including analysis of political aspects of social systems, social context of action, and social bases of power. P/NP or letter grading.

**183. Comparative and Historical Sociology (4)** Lecture, three hours; discussion, one hour. Requisite: course 1. Survey of central themes of comparative and historical studies in sociology. Various aspects of development of modern

society, including development of nation-state, emergence of capitalism, industrialization, and population growth. Variation in contemporary society, viewed from variety of theoretical perspectives. P/NP or letter grading.

**185. American Society (4)** Lecture, three hours; discussion, one hour. Analysis of major institutions in the U.S. in historical and international perspective, with emphasis on topics such as industrialization, work, state, politics, community, family, religion, and American culture. Theories of social change, conflict, and order applied to case of the U.S. P/NP or letter grading.

**186. Latin American Societies (4)** Lecture, three hours; discussion, one hour. Social structure and social conflict in Latin America, with special attention to racial and class structures and dilemmas of economic and political development. Country and specific focus varies each term. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Undergraduate Seminar: Self and Identity (5)** Seminar, three hours. Limited to junior/senior Sociology majors. Examination of cultural, historical, and interactional contexts shaping definition, enactment, and experience of self. Reading, discussion, and development of culminating project. Letter grading.

**191B. Undergraduate Seminar: Sociology of Humor and Laughter (5)** Seminar, three hours. Limited to junior/senior Sociology majors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

**191C. Undergraduate Seminar: Money and Emotions (5)** Seminar, three hours. Limited to junior/senior Sociology majors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

**191D. Undergraduate Seminar: Sociology of Development (5)** Seminar, three hours. Limited to juniors/seniors. Taught in Spanish. Selected topics on development in Third World from global perspective. Reading, discussion, and development of culminating project. Letter grading.

**191DC. CAPPP Washington, DC, Research Seminars (8)** (Same as Communication M191DC, History M191DC, Political Science M191DC, and Public Affairs M191DC.) Seminar, three hours. Limited to CAPPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**191E. Undergraduate Seminar: Population Growth Models (5)** Seminar, three hours. Limited to juniors/seniors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

**191F. Undergraduate Seminar: Sociology of Globalization (5)** Seminar, three hours. Limited to juniors/seniors. Great extension of social relations across globe has occurred over last 50 years. What are causes and mechanisms of this process, how far has it transformed human societies, and how far will it go in future? Economic, cultural, political, and military aspects of globalization, with focus on extent to which global expansion of capitalism, nation-

state system, and American imperialism reinforce or undercut each other, producing new lines of division and conflict across world. Reading, discussion, and development of culminating project. Letter grading.

**191H. Honors Seminars: Sociology (4)** Seminar, three hours. In-depth introduction to process of producing scholarly sociological research for students who intend to write undergraduate thesis for departmental honors. Letter grading.

**191I. Undergraduate Seminar: Health and Inequality (5)** Seminar, three hours. Limited to juniors/seniors. During past century, social inequalities in health and survival were widening in the U.S. as in other developed societies. Broad overview of these trends and their causes. Reading, discussion, and development of culminating project. Letter grading.

**191J. Undergraduate Seminar: Mexican Society (5)** Seminar, three hours. Selected topics on contemporary Mexican society and vital transformations it has undergone in recent years. Reading, discussion, and development of culminating project. Letter grading.

**191K. Undergraduate Seminar: Cigarettes and Western Civilization—Sociological History of Smoking (5)** Seminar, three hours. Limited to juniors/seniors. Use of history of tobacco and cigarette smoking to explore important themes in sociology, history, and culture. History of tobacco from its roots in Native American culture, its contribution to foundation of European colonies in New World, its cultural incorporation in western Europe, its role in rise of industrial way of life and health consequences, and its demise as legitimate soft drug for modern urban people. Letter grading.

**191L. Undergraduate Seminar: Environmental Justice and Sustainability (5)** Seminar, three hours. Limited to juniors/seniors. Sociological approach to study of environmental issues and problems. Topics include ecopolitics and ecofeminism, environmental racism, global environmental change, sustainable development, and society-environment interface. Reading, discussion, and development of culminating project. Letter grading.

**191M. Undergraduate Seminar: Social Ecology (5)** Seminar, three hours. Limited to juniors/seniors. Fundamentals of sociological approach to social ecology, also known as human ecology. Study of adaptation of population to its environment. Topics include density, maintaining personal space, space and territoriality, and effects of environment on humans. Reading, discussion, and development of culminating project. Letter grading.

**C191N. Undergraduate Seminar: Urban and Suburban Sociology (5)** Seminar, three hours. Limited to juniors/seniors. History and present condition of cities and suburbs in America, with stress on global cities such as New York and Los Angeles, and comparisons to London and Shanghai. Process of suburbanization as it began in early 19th century and still continues. Analysis of city politics, house and architectural styles, crime, urban terror, public housing and ghettos, segregation and integration of neighborhoods, question of gentrification, immigration, urban culture (especially art, museums, and movie and music industries), and environmentalism. Concurrently scheduled with course C297. Letter grading.

**191NY. Undergraduate Seminar: Urban and Suburban Sociology in New York City (5)** Seminar, eight hours. Limited to students in summer UCLA Travel Study Program. Cutting-edge urban issues in country's largest city, including New York's attempt to plan for city of 9.2 million, rebuilding of World Trade Center, Robert Moses (New York's master builder), urban economic development, green New York, transportation systems, urban politics, house and architectural styles, including New York's famous skyscrapers, historic preservation, crime and police departments, ghetto, education, urban poor, public housing, and search for affordable housing. Offered in summer only. Letter grading.

**191O. Undergraduate Seminar: Ideals of Love in Historical Perspective (5)** Seminar, three hours. Limited to juniors/seniors. Exploration of historically specific understandings of love. Reading, discussion, and development of culminating project. Letter grading.

**191P. Undergraduate Seminar: Politics of Reproduction (5)** Seminar, three hours. Limited to juniors/seniors. Social and human reproduction is global policy issue. Government efforts to influence reproduction are important feature of modern state: political intervention into private life, intimacy, and sexuality. Exploration of politics of reproduction—intersection between politics and life cycle or between public sphere and private lives—and coverage of broad range of issues addressing prevention and promotion of reproduction from historical-comparative approach. Reading, discussion, and development of culminating project. Letter grading.

**191Q. Undergraduate Seminar: Communication in Medical Care (5)** Seminar, three hours. Limited to juniors/seniors. Sociology dimensions of patient care in primary care context. Use of microsociological methods to examine main facets of American primary care medical visits, including detailed analysis of interactional conduct of those visits and development of microanalytical con-

structs into quantitative measures. Emphasis on direct contact with empirical materials and development of observational and analytic skills. Reading, discussion, and development of culminating project. Letter grading.

**191R. Undergraduate Seminar: Cultural Sociology (5)** Seminar, three hours. Limited to juniors/seniors. Introduction to classic theoretical approaches and contemporary developments in study of social worlds dedicated to creating and handling cultural institutions such as literature, journalism, film/television, art, architecture, music, dance, and museums. Discussion of such issues as contemporary validity of distinction between high and popular/low culture, relationship of mainstream and marginal culture, how culture expresses and reinforces social inequality, organizational context of culture, and how people express and decipher meaning in cultural objects. Reading, discussion, and development of culminating project. Letter grading.

**191S. Undergraduate Seminar: Sociology of Gender and Sexuality (5)** Seminar, three hours. Limited to juniors/seniors. Sexuality is important site for enactment of gender and gender identity. Sexual preference and sexual behavior can also form basis for social identity, repression, discrimination, and privilege, independent of gender. Social factors such as social class, ethnicity, generation, and networks shape our sexual practices and choice of partners. Reading and writing about variety of original sociological, historical, and anthropological texts and development of culminating project. Letter grading.

**191T. Undergraduate Seminar: War and Society (5)** Seminar, three hours. Limited to juniors/seniors. Study of relationship between society's military and its social organization in general, with particular attention to shock-based civic militarism characteristic of the West. Topics include honor, discipline, bureaucracy, conscription, logistics, total war, guerilla war, terrorism, and counterinsurgency. Reading, discussion, and development of culminating project. Letter grading.

**191V. Variable Topics Research Seminars: Sociology (5)** Seminar, three hours. Limited to juniors/seniors. Study of selected topics of sociological interest. Reading, discussion, and development of culminating project. Consult Schedule of Classes for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. Letter grading.

**194. Research Group Seminars: Sociology (2)** Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. P/ NP grading.

**194DC. Quarter in Washington, DC, Research Seminar (4)** (Same as History M194DC and Political Science M194DC.) Seminar, three hours. Limited to Quarter in Washington students and other students enrolled in UC Washington Center programs. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

**195. Community or Corporate Internships in Sociology (4)** Tutorial, three hours. Limited to juniors/seniors. Internship in community agency or business to be supervised jointly by Center for Community Learning and faculty adviser. Students meet on regular basis with instructor and provide weekly reports of their experience. Normally only 4 units of internship are allowed. Individual contract with supervising faculty member required. P/ NP or letter grading.

**195CE. Community and Corporate Internships in Sociology (4)** Tutorial, to be arranged; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in corporate, governmental, or nonprofit setting coordinated through Center for Community Learning. Students complete weekly written assignments, attend biweekly meetings with graduate student coordinator, and write final research paper. Faculty sponsor and graduate student coordinator construct series of reading assignments that examine issues related to internship site. May be repeated for credit with consent of Center for Community Learning. No more than 4 units may be applied toward major; units applied must be taken for letter grade. Individual contract with supervising faculty member required. P/ NP or letter grading.

**195DC. Quarter in Washington, DC, Internships (4)** (Same as Community Engagement and Social Change M195DC, History M195DC, Political Science M195DC, and Public Affairs M195DC.) Tutorial, four hours. Limited to junior/ senior Quarter in Washington program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/ NP grading.

**198A. Honors Research in Sociology (4)** Tutorial, one hour. Requisite: course 191H. Limited to sociology honors program students. Design of research project to serve as student's honors thesis. Research proposal, detailed bibliography, and regular meetings with sponsoring faculty member required. May be repeated for credit. Individual contract required. Letter grading.

**198B. Honors Research in Sociology (4)** Tutorial, one hour. Requisites: courses 191H, 198A. Limited to sociology honors program students. Continuation of work initiated in course 198A. Development of honors thesis in consultation with instructor. May be repeated for credit. Individual contract required. Letter grading.

**198C. Honors Research in Sociology (4)** Tutorial, one hour. Requisites: courses 191H, 198B. Limited to sociology honors program students. Completion of honors thesis under direct supervision of honors faculty director. May be repeated for credit. Individual contract required. Letter grading.

**199. Directed Research in Sociology. (2 to 4)** Tutorial, one hour. Preparation: 3.0 grade-point average in major. Requisites: course 1, and Political Science 6 or Statistics 10 or 13. Limited to junior/senior Sociology majors. Independent intensive study designed for students who want to do research under guidance of faculty mentor. Scheduled meetings to be arranged between faculty member and student. Culminating paper or project required. May be repeated for maximum of 16 units, but only 8 units may be applied toward major. Individual contract required; see undergraduate counselor. P/NP or letter grading.

**199A. Directed Research in Language and Social Behavior (4)** Tutorial, one hour. Limited to junior/senior Language and Social Behavior minors. Independent intensive study designed for students who want to do research under guidance of member of Language and Social Behavior minor faculty advisory committee. Scheduled meetings to be arranged between faculty member and student. Culminating paper or project required. Individual contract required; see undergraduate counselor. Letter grading.

**199B. Directed Research in Language and Social Behavior (4)** Tutorial, one hour. Limited to junior/senior Language and Social Behavior minors. Independent intensive study designed for students who want to do research under guidance of member of Language and Social Behavior minor faculty advisory committee. Scheduled meetings to be arranged between faculty member and student. Culminating paper or project required. Individual contract required; see undergraduate counselor. Letter grading.

## Graduate

**201A. Proseminar: Sociology (2)** Seminar, two hours every other week. Required of first-year graduate sociology students. Introduction to range of theoretical and research interests represented by department faculty members. S/U grading.

**201B. Proseminar: Sociology (2)** Seminar, two hours every other week. Required of first-year graduate sociology students. Introduction to range of theoretical and research interests represented by department faculty members. S/U grading.

**201C. Proseminar: Sociology (2)** Seminar, two hours every other week. Required of first-year graduate sociology students. Introduction to range of theoretical and research interests represented by department faculty members. S/U grading.

**202A. Theory and Research in Sociology (4)** Lecture, two hours; discussion, two hours. Required of first-year graduate sociology students. Examination of interrelations of theory, method, and substance in exemplary sociological works, with analytical and skills-centered orientation. In Progress grading (credit to be given only on completion of course 202B).

**202B. Theory and Research in Sociology (4)** Lecture, two hours; discussion, two hours. Required of first-year graduate sociology students. Examination of interrelations of theory, method, and substance in exemplary sociological works, with analytical and skills-centered orientation. S/U or letter grading.

**203. How to Write a Lot (4)** Seminar, three hours. Designed to help graduate students develop regular and productive writing practices. Appropriate for students in their second year or beyond who have one full draft of their MA paper written and want to revise and publish it in timely manner. Development of regular writing schedules and protecting them from competing demands. Learning of specific genres of writing for academic journals, books, and op-eds. Editing of students' own work and that of classmates. S/U or letter grading.

**204. Topics in Sociological Theorizing (4)** Seminar, four hours. Examination of selected issues and problems in classical or contemporary sociological theory. S/U or letter grading.

**205. Family and Social Change (4)** Lecture, three hours. Examination of sources of change in family and household organization, with major focus on relationships among economic institutions, family structure, and content of family life. Consideration of concepts, theories, and data about kinship. S/U or letter grading.

**206. Understanding Fertility: Theories and Methods (4)** (Same as Community Health Sciences M222.) Lecture, three hours. Preparation: one formal or social demography course. Requisite: Biostatistics 100A. Application of demographic theories and methods to describe fertility trends and differentials and social and proximate determinants of fertility, with emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, and social demography. Letter grading.

**208A. Social Network Methods (4)** Lecture, three hours; laboratory, one hour. Requisites: courses 210A, 210B. Techniques for measuring characteristics of networks and positions in networks. Centrality of positions, centralization and density of networks, structural equivalence, cliques. Readings of exemplars of network research. Computer programs. S/U or letter grading.

**208B. Social Network Methods (4)** Lecture, three hours; laboratory, one hour. Requisites: courses 210A, 210B. Techniques for measuring characteristics of networks and positions in networks. Centrality of positions, centralization and density of networks, structural equivalence, cliques. Readings of exemplars of network research. Computer programs. S/U or letter grading.

**208C. Machine Learning for Social Scientists (4)** Lecture, three hours. Requisites: courses 210A, 210B, or consent of instructor. Conceptual, mathematical, and computational foundations of machine learning, with special focus on social science applications. Survey of supervised and unsupervised methods, including Naïve Bayes, k-means, logistic regression, decision trees (classification and regression), topic models, and neural networks. Practicalities of implementation on range of data types. S/U or letter grading.

**210A. Intermediate Statistical Methods I (4)** Lecture, three hours; discussion, two hours. Intermediate statistical methods using computers: probability theory, sampling distributions, hypothesis testing, interval estimation, multiple regression and correlation, experimental design, analysis of variance and covariance, contingency tables, sampling theory. S/U or letter grading.

**210B. Intermediate Statistical Methods II (4)** Lecture, three hours; discussion, two hours. Intermediate statistical methods using computers: probability theory, sampling distributions, hypothesis testing, interval estimation, multiple regression and correlation, experimental design, analysis of variance and covariance, contingency tables, sampling theory. S/U or letter grading.

**210C. Intermediate Statistical Methods III (4)** Lecture, three hours; discussion, one hour. Requisite: course 210B. Survey of advanced statistical methods used in social research, with focus on problems for which classical linear regression model is inappropriate, including categorical data, structural equations, longitudinal data, incomplete and erroneous data, and complex samples. S/U or letter grading.

**211A. Comparative and Historical Methods: Strategies of Research and Conceptualization (4)** Lecture, three hours. Topics include relationship of theory and fact to social sciences, logic of comparative and historical analysis, and substantive paradigms of comparative and historical analysis. Reading involves methodological examination of basic works in representative problem areas. In Progress grading (credit to be given only on completion of course 211B).

**211B. Comparative and Historical Methods: Research Techniques (4)** Lecture, three hours. Requisite: course 211A. Topics include problem of evidence, quantitative and qualitative data. Techniques of data analysis, including use of manuscript census, content analysis, collective biography, and secondary analysis. S/U or letter grading.

**212A. Quantitative Data Analysis (4)** Lecture, three hours; discussion, one hour. Enforced requisites: courses 210A, 210B. Course 212A is enforced requisite to 212B. Analysis and interpretation of primarily nonexperimental quantitative data, with focus on sample survey and census data. Extensive practice at utilizing statistical methods encountered in previous courses, culminating in term paper proposal in style of American Sociological Review or similar journal article. Topics include simple tabular analysis, correlation, log-linear analysis, ordinary least squares regression, regression with interactions, robust regression, diagnostic procedures, and methods for handling complex sample survey designs. S/U or letter grading.

**212B. Quantitative Data Analysis (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 212A. Analysis and interpretation of primarily nonexperimental quantitative data, with focus on sample survey and census data. Extensive practice at utilizing statistical methods encountered in previous courses, culminating in term paper in style of American Sociological Review or similar journal article. Topics include missing data; binomial, multinomial, and ordinal logistic regression; factor analysis and scale construction;



methods for causal inference, including fixed effects and propensity score matching; and primer on advanced topics, including structural equations and multilevel models. S/U or letter grading.

**212C. Study Design and Other Issues in Quantitative Data Analysis (4)** Lecture, three hours. Designed for graduate and undergraduate students who have had some exposure to statistics and quantitative methods. Introduction to study design, including experimental, longitudinal, cohort, time-series designs, contextual, and other designs. Discussion of suitability of various design classes for specific analytic goals, as well as their comparative strengths and weaknesses. S/U or letter grading.

**213A. Introduction to Demographic Methods (4)** (Same as Biostatistics M208, Community Health Sciences M208, and Economics M208.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

**213B. Applied Event History Analysis (4)** Lecture, three hours. Preparation: exposure to binary response models. Requisites: courses 210A, 210B. Introduction to regression-like analyses in which outcome is time to event. Topics include logit models for discrete-time event history models; piecewise exponential hazards models; proportional hazards; nonproportional hazards; parametric survival models; heterogeneity; multilevel survival models. S/U or letter grading.

**213C. Population Models and Dynamics (4)** (Same as Community Health Sciences M209.) Lecture, three hours. Requisite: course M213A. Population models and their dynamics in population processes. How demographic models are used in estimation of population size, age structure, and associated dynamics. Computer simulations of demographic processes to gauge conclusions from demographic models. Estimation of demographic models in human population and broader relevance of demographic analysis to study of any population or system, including health and social systems. S/U or letter grading.

**216A. Survey Research Design (4)** Lecture, three hours. Recommended requisite: course 210A. Past, present, and future of survey research; survey modes; survey errors; survey sampling; response rates; questionnaire design; reliability and validity of survey items; survey administration and management; ethics and costs. Letter grading.

**216B. Survey Research Design (4)** Lecture, three hours. Practical application of survey design skills. Students design and implement individual survey data collection projects and collectively review and evaluate their projects' results and challenges. Letter grading.

**217A. Analyzing Ethnographies (4)** Seminar, three hours. Analysis of ethnographic monographs. S/U or letter grading.

**217B. Ethnographic Fieldwork (4)** Seminar, three hours. Recommended requisite: course 217A. Theories and techniques of ethnographic fieldwork. Kinds of problems amenable to ethnographic approaches, methods, and techniques for doing fieldwork, and ethnical problems involved in such research. In Progress grading (credit to be given only on completion of course 217C).

**217C. Ethnographic Fieldwork (4)** Seminar, three hours. Recommended requisite: course 217A. Theories and techniques of ethnographic fieldwork. Kinds of problems amenable to ethnographic approaches, methods, and techniques for doing fieldwork, and ethnical problems involved in such research. Letter grading.

**220. Self and Society (4)** Lecture, three hours. Examination of social and cultural processes shaping definition and experience of the self, embodied interactional practices through which the self is constructed in everyday and institutional contexts, formation and transformation of self during life course, and construction of collective identity. Letter grading.

**222. Foundations of Ethnomethodological, Phenomenological, and Analytical Sociologies (4)** Lecture, three hours. Designed for graduate students. Basic issues, methods, and topics of ethnomethodological, phenomenological, conversation-analytic, and related varieties of inquiry. Themes such as world of everyday life, problem of rationality, rules/norms and tacit knowledge, problem of social order, speaking and discourse, constitutive practices, and production of ordinary interaction in first part; guest presentations by affiliated faculty in second part. S/U or letter grading.

**223. Phenomenological and Interactionist Perspectives on Selected Topics (4)** Lecture, three hours. Comparison of phenomenological and symbolic interactionist perspectives by examining particular body of live or currently unresolved substantive issues. Topics vary; attention on development of phenomenological and interactionist thought on topic of concern, with special concern for ambiguities and divergences both within and between two ap-

proaches. When relevant, attention to logical and historical relations of phenomenology and interactionism of pragmatist, existentialist, and ordinary language philosophies. S/U or letter grading.

**225A. Applications of Economic Theory: California Population Research Topical Seminar Series (4)** (Same as Economics M204A.) Seminar, three hours. Limited to California Center for Population Research (CCPR) affiliates. Examination of issues such as demography, health, aging, labor, and broad array of topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. S/U grading.

**226A. Introduction to Theory and Major Empirical Research in Social Demography (4)** Lecture, two hours; discussion, one hour. Requisite: course 210A. Survey and critical examination of population theories and related major empirical research. Emphasis on interrelation of cultural, socioeconomic, and demographic factors. Introduction to elementary demographic methods utilizing microcomputers. S/U or letter grading.

**226B. Introduction to Theory and Major Empirical Research in Social Demography (4)** Lecture, two hours; discussion, one hour. Requisite: course 210A. Survey and critical examination of population theories and related major empirical research. Emphasis on interrelation of cultural, socioeconomic, and demographic factors. Introduction to elementary demographic methods utilizing microcomputers. S/U or letter grading.

**227. Sociology of Knowledge (4)** Lecture, three hours. Designed for graduate students. Survey of theories and research concerning social determinants of systems of knowledge and role of intellectual and artistic elites in Western societies. S/U or letter grading.

**228. Critical Issues in Macrosociology (4)** Lecture, three hours. Conceptual introduction to area of macrosociology in which exemplary works are read, studied for substance and methods, and critiqued in seminar and in written papers. S/U or letter grading.

**230A. Comparative Ethnicity, Race, and Nationalism (4)** Seminar, three hours. Preparation for independent research in area of comparative ethnicity, race, and nationalism through close reading of key theoretical and empirical works. S/U or letter grading.

**230B. Comparative Ethnicity, Race, and Nationalism (4)** Seminar, three hours. Preparation for independent research in area of comparative ethnicity, race, and nationalism through close reading of key theoretical and empirical works. S/U or letter grading.

**230C. Comparative Ethnicity, Race, and Nationalism (4)** Seminar, three hours. Introduction to comparative and historical sociology of race and ethnicity to demonstrate merits of double comparative approach to race, one that strives to be as comparative at level of theory (attending to relationship between race and other forms of social classification, including ethnicity and nationality) as it does at level of research. Exploration of cases from wide variety of countries, including Australia, Brazil, Colombia, Dominican Republic, Haiti, Mexico, modern China, modern Japan, Nazi Germany, Nicaragua, Rwanda, South Africa, Sudan, and U.S. S/U or letter grading.

**231. Race, Class, and Gender: Constructing Black Womanhood and Black Manhood in America (4)** (Same as African American Studies M200G.) Seminar, four hours. Race, class, gender, and sexual identity are axes of stratification, identity, and experience. They are not merely identities but structural locations that are often taken for granted and rarely confronted, challenged, or contested. Many times one or more of these go unrecognized. Exploration of multiple and intersecting ways these concepts shape society, individual life chances, and daily social interactions for African Americans. Examination of race, class, and gender inequalities as individual aspects of social life. How race, class, gender, and sexual identity shape societies and individual experiences in interaction with each other. How these inequalities shape and are shaped by social institutions, including cultural institutions, economy, and family, within context of experiences of black women and black men in contemporary U.S. Letter grading.

**232. Class, Politics, and Society (4)** Lecture, four hours. Nature of class structure and how it affects relation of class structure to politics and political power. Issue of salience of class versus other identities such as gender, age, race, and nationalism. Examination of contemporary globalization tendencies of capitalism. Letter grading.

**233. Foundations of Political Sociology (4)** Lecture, three hours. Designed for graduate students. Survey of field of political sociology, oriented around critical themes in major theoretical traditions and contemporary exemplars. Special attention to competing perspectives on power, theory of state, and relationship of class structure to politics. S/U or letter grading.

**234. Sociology of Development (4)** Seminar, three hours; discussion, one hour. Readings and discussion of theoretical, historical, and specific issues in sociology of development (e.g., world system theory, developmental state, import substitution industrialization, export promotion industrialization, neoliberalism in Latin America, new approaches). S/U or letter grading.

**235A. Race/Ethnicity in U.S. (4)** Lecture, three hours. Survey of theoretical and empirical literature on race, ethnicity, and immigrant groups in U.S. to provide comparative analysis of racial/ethnic groups as well as provide detailed knowledge of particular racial/ethnic groups, to situate contemporary experiences within historical contexts, to understand structural integration into U.S. society (i.e., structural assimilation or socioeconomic mobility), and to examine theoretical approaches to understanding race and ethnicity in contemporary society. Preparation for field examination in race and ethnicity. S/U or letter grading.

**235B. Race/Ethnicity in U.S. (4)** Lecture, three hours. Survey of theoretical and empirical literature on race, ethnicity, and immigrant groups in U.S. to provide comparative analysis of racial/ethnic groups as well as provide detailed knowledge of particular racial/ethnic groups, to situate contemporary experiences within historical contexts, to understand structural integration into U.S. society (i.e., structural assimilation or socioeconomic mobility), and to examine theoretical approaches to understanding race and ethnicity in contemporary society. Preparation for field examination in race and ethnicity. S/U or letter grading.

**236A. International Migration (4)** Lecture, three hours. Comprehensive overview of key current theoretical debates in study of international migration, with focus on exploration of possibilities of comparative (historical and cross-national) research program in field, linking North American, European, and other global experiences of immigration. S/U or letter grading.

**236B. International Migration (4)** (Same as Geography M224.) Lecture, three hours. Further exploration of key current theoretical debates in study of international migration, with emphasis on exploring both theoretical debates of field and empirical data and case studies on which those debates hinge, to encourage students to undertake research in field. S/U or letter grading.

**236C. International Migration (4)** Lecture, three hours. Designed for students beginning or undertaking original research in field of international migration. Outside lectures, oral presentations of student projects, circulation of completed or draft student papers. S/U or letter grading.

**237. Seminar: Theory and Research in Comparative Social Analysis (2)** Seminar, two hours. Designed for graduate students. Emphasis on one issue of particular importance for comparative analysis of capitalism and socialism, North America and Western Europe, developed capitalist and socialist countries and Third World, and implications for theory construction and social research. S/U grading.

**238. Sociology of Gender and Sexuality (4)** (Same as Gender Studies M238.) Seminar, three hours. Designed for graduate students. Analysis of current American feminist theory relevant to sociologists. Exploration of critiques of second wave feminism by working class feminists and/or feminists of color, feminist scholars from other countries, and recent so-called antifeminist feminists. Discussion of directions for future feminist sociology. Letter grading.

**239A. Social Stratification, Mobility, and Inequality (4)** Lecture, three hours. Enforced requisites: courses 210A, 210B. Course 239A is enforced requisite to 239B. Introduction to literature on social stratification, mobility, and inequality in U.S. and abroad, with focus on concepts, data, methods, and facts about occupational and class structure; intergenerational transmission of socioeconomic status; effects of family, school, and labor market on socioeconomic achievement, careers, and inequality; earnings, income, and wealth distribution; poverty; social mobility; socioeconomic factors and marriage; gender and ethnic stratification; and health disparities. S/U or letter grading.

**239B. Social Stratification, Mobility, and Inequality (4)** Lecture, three hours. Enforced requisites: courses 210A, 210B, 239A. Introduction to literature on social stratification, mobility, and inequality in U.S. and abroad, with focus on concepts, data, methods, and facts about occupational and class structure; intergenerational transmission of socioeconomic status; effects of family, school, and labor market on socioeconomic achievement, careers, and inequality; earnings, income, and wealth distribution; poverty; social mobility; socioeconomic factors and marriage; gender and ethnic stratification; and health disparities. S/U or letter grading.

**240. Sociology of Education (4)** Lecture, three hours. Overview of social scientific study of education, with special focus on sociology (along with history and philosophy). Examination of contemporary sociology of education's focus on stratification at two levels. Examination of how scholars have studied schools' role in maintaining or altering stratification and inequality by looking at quantitative and qualitative approaches to race, class, gender, and sexuality in education. Examination of how focus on stratification can exist alongside, provide foundation for, or obfuscate other longstanding commitments in study of schooling including moral character, citizenship, ethnic nationalism, and maintenance of particular economic, racial, and sexual order. Examination of classic philosophical texts and recent sociological and historical work

on how broader structures of government, culture, and social institutions affect what schools do and what actors believe they are supposed to do. S/U or letter grading.

**241. Theories of Gender in Society (4)** Lecture, one hour; discussion, two hours. Gender stratification in society and sociology; extent of gender diversity in human societies past and present; why gender is absent in classical macrosociology; can masculinist paradigms make space for gender or does feminist-informed sociology necessitate fresh approach? S/U or letter grading.

**C244A. Conversational Structures I (4)** (Formerly numbered 244A.) Lecture, three hours; discussion, one hour. Introduction to various structures employed in organization of conversational interaction, such as turn-taking, action sequencing, and repair. Concurrently scheduled with course CM124A. S/U or letter grading.

**244B. Conversation Analysis II (4)** Lecture, three hours; discussion, two hours. Requisite: course C244A. Continuation of introduction to some structures basic to organization of conversational interaction: organization of repair, and practices of word selection and reference to persons, places, time, and action. S/U or letter grading.

**244C. Conversation Analysis III (6)** Lecture, three hours; discussion, two hours. Requisites: courses 244A, 244B. Continuation of introduction to some structures basic to organization of conversational interaction: practices of action formation, storytelling organization, and overall structural organization of single conversations. S/U or letter grading.

**245. Cultural Sociology: Classical and Contemporary Approaches (4)** Lecture, one hour; discussion, two hours. Exploration of classical approaches to cultural dimension of social life—Weberian, Durkheimian, Parsonian, and critical—and living traditions they have spawned. Examination of contemporary efforts at constructing new cultural sociology. Theoretical focus, with consideration of case studies. S/U or letter grading.

**246. Sociology of Culture (4)** Seminar, three hours. Theoretical and methodological issues in structural approaches to culture. Perspectives include cultural economics, political economy, and production of culture. S/U or letter grading.

**247. Sociology of Emotions (4)** Lecture, two hours; discussion, one hour. Designed for graduate students. Sociological theories of emotional expression; experiential approaches to emotions: motivational, cognitive, psychophysiological, and behavioral; repression, social oppression, and emotions; creativity and expressed affect; thought, sensations, and emotions; specific emotions; cultural differences in emotional expression; measurement of emotions. Letter grading.

**248. Selected Topics in Culture and Society (4)** Seminar, three hours. Designed for graduate students. Seminar on selected topics on culture and society. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**249. Culture, Brain, and Development (4)** (Same as Psychology M247.) Seminar, three hours. General introduction to interrelations of culture, brain, and development, including both social and cognitive development. Special attention to effects of social change on culture and human development. S/U or letter grading.

**250. Sociology of Health (4)** Seminar, three hours. Exploration of literature of human health as product of society. Macro focus and micro focus used to examine relevance of macro organizational features of national society (culture, economy, politics) while maintaining awareness of micro pathways that link these wider influences to personal experience (mind, body, emotion). Main focus on modern industrial societies and organized around many leading issues in sociology of health. S/U or letter grading.

**251. Social Movements (4)** Seminar, three hours. In-depth exploration of current theoretical debates and empirical research on social movements, collective action, and contentious politics, examining case studies, comparative analyses, and large-N investigations, with focus on developing student expertise in understanding social movement research and conceptualizing research projects. S/U or letter grading.

**252. Selected Topics in Sociology of Gender (4)** (Same as Gender Studies M252.) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit. Letter grading.

**253. Politics of Reproduction, Gender, and Family (4)** Seminar, three hours. Human reproduction and its regulation have long been focus of contentious politics around world and remain topical today. Reproduction refers both to biological and social reproduction; their interdependence shapes policies and practices pertaining to them. Government efforts to influence fertility behavior call attention to one important feature of modern states: political intervention into private life, intimacy, and sexuality. Politics of reproduction refers to inter-

section between politics and life cycle, or between public sphere and private lives. Expansion of state into bodies and lives of citizens has blurred lines between public and private interests. Exploration of diverse aspects of politics of reproduction, their gendering, and their impact on changing family forms to encourage students to think comparatively and historically about these issues in different contexts and cultures. Letter grading.

**254. Human Capital, Social Capital, and Cultural Capital (4)** Lecture, three hours. Designed for graduate students. Intellectual history of these concepts, points of difference and similarity among these concepts, current exemplars of research that utilize these concepts, and critical reflection on research traditions. Letter grading.

**255. Cross-Cultural Perspectives on Gender (4)** (Same as Gender Studies M255.) Seminar, three hours. How does gender manifest itself in lives of different groups of women in U.S. and abroad? Are universal analytical categories or united feminist movements possible or is gender too different cross-culturally? S/U or letter grading.

**256. Demography (4)** Lecture, four hours. S/U or letter grading.

**257. Demography of Marriage Formation and Dissolution (4)** Discussion, three hours. Requisite: course 210A. Extensive and intensive critical examination of major approaches to analysis of marriage formation and dissolution, with focus primarily on demographic literature. S/U or letter grading.

**C258. Talk and Social Institutions (4)** Lecture, four hours; discussion, one hour. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. Concurrently scheduled with course CM125. S/U or letter grading.

**260. Economy and Society (4)** Discussion, two hours. Designed for graduate students. Review and critique of major analytical traditions in economy and society. S/U or letter grading.

**262. Black Families and Relationships (4)** (Same as African American Studies M200C.) Seminar, three hours. Evaluation of social, cultural, and historical forces that affect socialization, stability, and interaction in black intimate relationships, beginning with theoretical framework from black feminism to analysis of economic and other expectations for partners in cohabiting and other types of unions. Examination of family life for both middle-class and low-income populations. Exploration of notions of black sexuality, including images of hyper-masculinity and femininity within black body and critical interrogation of notions of blackness and authenticity in racial identification. Contribution to greater understanding of black intimate relationships in different contexts, including lesbian and gay identities, Caribbean and other ethnic identities, and interracial intimacies. S/U or letter grading.

**263. Social Demography of Los Angeles (4)** (Same as Community Health Sciences M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in the U.S. Examination of role of these factors in affecting health outcomes. Letter grading.

**265. Problems in Organization Theory (4)** Lecture, four hours. S/U or letter grading.

**266. Selected Problems in Analysis of Conversation (4)** Lecture, three hours. Requisites: courses 244A, 244B. Variable topics/formats course. Consult instructor for topics and formats to be offered in specific term. May be repeated for credit with topic change. S/U or letter grading.

**268. Selected Problems in Psychoanalytic Sociology (4)** Discussion, three hours. Recommended preparation: at least one year of methods courses. Selected problems in interpretation of sociology and psychoanalysis, which may be substantive (group development, socialization, culture, deviance, collective behavior) or methodological; latter focuses on clinical fieldwork and experimental use of psychoanalytic and sociological techniques. S/U or letter grading.

**272. Topics in Political Sociology (4)** Lecture, four hours. S/U or letter grading.

**275. Contemporary Issues of American Indians (4)** (Same as American Indian Studies M200C and Anthropology M244P.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B. Letter grading.

**278. Sociology of Latin America (4)** Lecture, one hour; discussion, two hours. Designed for graduate students. Selected topics in sociological study of Latin America. Possible topics include social movements, race and ethnicity, stratification, and social development. Letter grading.

**280. Trafficking, Gender, Health, and Human Rights (4)** (Same as Law M577.) Seminar, four hours. Review and critical assessment of diverse literature on international traffic of persons, with emphasis on significance of sociological, legal, and gender aspects of trafficking. Primary focus on trafficking for sex work and blurred lines between discourse on commercial sex trade and trafficking. Additional issues include role of political and economic transition, militarization, health implications of trafficking, trafficking for nonsexual labor, and role of advocacy. S/U or letter grading.

**281. Selected Problems in Mathematical Sociology (4)** Lecture, three hours. Exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction. S/U or letter grading.

**282. Sociology of Medicine (4)** Seminar, three hours. Review of major concepts and issues in sociology of medicine. Topics include medicine, culture, and capitalism, professions and power, challenge of managed care, sick role and social control, interactionism and negotiation of sickness, sickness and self, debates over medicalization and demedicalization. Designed as preparation for field examination in sociology of health and medicine and specifically for themes traditionally included under medical sociology/sociology of medicine. S/U or letter grading.

**283. Communication in Medical Care (4)** Seminar, three hours. Review and development of empirical knowledge about doctor-patient relationship. Analysis of nature and dynamics of routine office visits, with focus on nature and role of norms in regulating doctor-patient conduct, role of expertise and power in doctor-patient relationship, and methodological questions concerning how doctor-patient relationship can be analyzed. S/U or letter grading.

**284. Topics in Mental Health and Illness (4)** Lecture, two to three hours. Requisite: course M148. Designed for graduate students. S/U or letter grading.

**285A. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285B. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285C. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285D. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285E. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285F. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285G. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285H. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285I. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285J. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285K. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285L. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285M. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**285N. Special Topics in Sociology (4)** Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult Schedule of Classes for topics and instructors. May be repeated for credit. S/U or letter grading.

**287. Topics in Chinese Society (4)** Seminar, three hours. Preparation: at least two upper-division courses on China in any social sciences discipline. Introduction to current research questions in Chinese sociology, as well as major themes in study of Chinese society, both historical and contemporary, including demographic, economic, political, and social change before and after 1949. S/U or letter grading.

**289A. Practicum in Conversation Analysis: Data Analysis (2)** Laboratory, two hours. Requisites: courses 244A, 244B. Practice in analysis of conversational data. May be repeated for credit. S/U grading.

**289B. Practicum in Conversation Analysis: Developing Work in Progress (4)** Seminar, three hours. Requisites: courses 244A, 244B. Opportunity to advance research projects in progress and to develop skills of constructive criticism in discussing work of others. S/U grading.

**295. Working Group in Sociology. (1 to 4)** Discussion, two hours. Variable topics, including sociology of gender; ethnography; social networks; race, ethnicity, immigration; and social demography and stratification. Advanced study and analysis of current topics in specialized areas of sociology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

**C297. Urban and Suburban Sociology (5)** Seminar, three hours. History and present condition of cities and suburbs in America, with stress on global cities such as New York and Los Angeles, and comparisons to London and Shanghai. Process of suburbanization as it began in early 19th century and still continues. Analysis of city politics, house and architectural styles, crime, urban terror, public housing and ghettos, segregation and integration of neighborhoods, question of gentrification, immigration, urban culture (especially art, museums, and movie and music industries), and environmentalism. Concurrently scheduled with course C191N. Letter grading.

**298. Workshop in Culture and Society (4)** Seminar, two hours every other week. Interdisciplinary workshop for graduate students and faculty pursuing theory and research in topics related to interplay of culture and society, whether social, literary, or philosophical in nature. S/U grading.

**402. Practices of Evaluation in Health Services: Theory and Methodology (4)** (Same as Health Policy M422.) Lecture, four hours. Requisites: Health Policy 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading.

**495. Supervised Teaching of Sociology (2)** Seminar, two hours. Preparation: appointment as teaching assistant in Sociology Department. Special course for teaching assistants designed to deal with problems and techniques of teaching introductory sociology. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**595. Directed Research for Master's Paper (4 to 12)** Tutorial, to be arranged. Directed research for and writing of MA degree paper under guidance of student's MA committee chair. S/U grading.

**596. Directed Individual Study and Research in Sociology (2 to 12)** Tutorial, to be arranged. S/U grading.

**597. Individual Study for Examinations (4 to 12)** Tutorial, to be arranged. Preparation for qualifying examinations. S/U grading.

**599. Research in Sociology for PhD Candidates (4 to 12)** Tutorial, to be arranged. S/U grading.

## Spanish and Portuguese

## Indigenous Languages of the Americas Courses

### Lower Division

**1. Elementary Zapotec (4)** Lecture, five hours. Introduction to Zapotec language of Tlaxcala Valley of Oaxaca. P/NP or letter grading.

**2. Elementary Zapotec (4)** Lecture, five hours. Enforced requisite: course 1. Introduction to Zapotec language of Tlaxcala Valley of Oaxaca. P/NP or letter grading.

**3. Elementary Zapotec (4)** Lecture, five hours. Enforced requisite: course 2. Introduction to Zapotec language of Tlaxcala Valley of Oaxaca. P/NP or letter grading.

**5A. Elementary Nahuatl (4)** (Formerly numbered M5A.) Lecture, four hours. Course 5A is enforced requisite to 5B, which is enforced requisite to 5C. Introduction to Aztec language of central Mexico. Coverage of basic Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**5B. Elementary Nahuatl (4)** (Formerly numbered M5B.) Lecture, four hours. Enforced requisite: course 5A. Introduction to Aztec language of central Mexico. Coverage of basic Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**5C. Elementary Nahuatl (4)** (Formerly numbered M5C.) Lecture, four hours. Enforced requisite: course 5B. Introduction to Aztec language of central Mexico. Coverage of basic Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**15A. Intermediate Nahuatl (4)** (Formerly numbered M15A.) Lecture, four hours. Enforced requisites: courses 5A, 5B, 5C. Course 15A is enforced requisite to 15B, which is enforced requisite to 15C. Taught primarily in Nahuatl. Examination of Nahuatl (Aztec) language of central Mexico at intermediate level. Coverage of Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**15B. Intermediate Nahuatl (4)** (Formerly numbered M15B.) Lecture, four hours. Enforced requisite: course 15A. Taught primarily in Nahuatl. Examination of Nahuatl (Aztec) language of central Mexico at intermediate level. Coverage of Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**15C. Intermediate Nahuatl (4)** (Formerly numbered M15C.) Lecture, four hours. Enforced requisite: course 15B. Taught primarily in Nahuatl. Examination of Nahuatl (Aztec) language of central Mexico at intermediate level. Coverage of Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**17. Intensive Elementary Quechua (12)** Lecture, 15 hours; laboratory, five hours. Intensive course equivalent to courses 18A, 18B, 18C. Language of Incas and its present-day dialects, as spoken in Andean South America. Offered in summer only. Letter grading.

**18A. Elementary Quechua (4)** Lecture, five hours. Course 18A is enforced requisite to 18B, which is enforced requisite to 18C. Language of Incas and present-day Quechua language, as spoken in Andean South America. P/NP or letter grading.

**18B. Elementary Quechua (4)** Lecture, five hours. Enforced requisite: course 18A. Language of Incas and present-day Quechua language, as spoken in Andean South America. P/NP or letter grading.

**18C. Elementary Quechua (4)** Lecture, five hours. Enforced requisite: course 18B. Language of Incas and present-day Quechua language, as spoken in Andean South America. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**115A. Advanced Nahuatl (4)** (Formerly numbered M115A.) Lecture, four hours. Requisites: courses 15A, 15B, 15C. Course 115A is requisite to 115B, which is requisite to 115C. Taught primarily in Nahuatl. Examination of Nahuatl (Aztec) language of central Mexico at intermediate level. Coverage of Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**115B. Advanced Nahuatl (4)** (Formerly numbered M115B.) Lecture, four hours. Requisite: course 115A. Taught primarily in Nahuatl. Examination of Nahuatl (Aztec) language of central Mexico at intermediate level. Coverage of Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**115C. Advanced Nahuatl (4)** (Formerly numbered M115C.) Lecture, four hours. Requisite: course 115B. Taught primarily in Nahuatl. Examination of Nahuatl (Aztec) language of central Mexico at intermediate level. Coverage of Nahuatl grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

**119A. Advanced Quechua (4)** Lecture, five hours. Requisite: course 18C. Course 119A is requisite to 119B, which is requisite to 119C. Readings in Quechua. Dialectal and stylistic variation. Discussions mainly in Quechua. P/NP or letter grading.

**119B. Advanced Quechua (4)** Lecture, five hours. Requisite: course 119A. Readings in Quechua. Dialectal and stylistic variation. Discussions mainly in Quechua. P/NP or letter grading.

**119C. Advanced Quechua (4)** Lecture, five hours. Requisite: course 119B. Readings in Quechua. Dialectal and stylistic variation. Discussions mainly in Quechua. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Variable Topics Research Seminars: Indigenous Languages (2, 4)** Seminar, three hours. Research seminars on selected topics on various indigenous languages. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

## Graduate

**596. Directed Studies in Quechua (1 to 8)** Tutorial, to be arranged. Requisites: courses 119A, 119B, 119C. Directed individual study or research in Quechua. Four units may be applied toward MA course requirements. May be repeated for credit. S/U grading.

## Portuguese Courses

### Lower Division

**1. Elementary Portuguese (4)** Lecture, three hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Introductory Portuguese language and culture course that is proficiency-oriented, communicative, and task-

based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

**2. Elementary Portuguese (4)** Lecture, three hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Introductory Portuguese language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

**3. Intermediate Portuguese (4)** Lecture, three hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Intermediate Portuguese language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

**8A. Portuguese Conversation (2)** Lecture, three hours. Requisite: course 1, 11A, Portuguese Language Assessment Interview, or enrollment in any Portuguese course. Designed to help beginner and intermediate students of Portuguese language improve their conversation skills through discussions, presentations, participation in events, and other communicative situations. Among other elements of speech, use of formal and informal speaking styles. Use of appropriate vocabulary to discuss issues relevant to students' lives and to Afro-Luso-Brazilian culture. P/NP or letter grading.

**8B. Portuguese Conversation (2)** Discussion, three hours. Enforced requisite: course 3 with grade of B or better. P/NP or letter grading.

**11A. Intensive Portuguese (5)** Lecture, four hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Accelerated course designed only for students with proficiency in another Romance language. P/NP or letter grading.

**11B. Intensive Portuguese (5)** Lecture, four hours; laboratory, two hours. Taught in Portuguese. Laboratory is online. Accelerated course designed only for students with proficiency in another Romance language. P/NP or letter grading.

**13. Intensive Introductory Portuguese Language and Culture (12)** Lecture, 20 hours; laboratory, three hours. Intensive introduction to Portuguese language and culture equivalent to courses 1, 2, and 3, and 11A and 11B. Proficiency-oriented, communicative and task-based approach intended to facilitate communicative competence in four language skills areas: listening, speaking, reading, and writing. Development of cultural awareness of heterogeneous Portuguese-speaking community in America, Europe, and Africa. Intensive accelerated course designed to help students increase their ability to communicate in Portuguese. Offered in summer only. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**25. Advanced Portuguese (4)** Lecture, three hours. Enforced requisite: course 3 or 11B. P/NP or letter grading.

**25A. Advanced Portuguese: Summer Course (4)** Lecture, 20 hours. Enforced requisite: course 3 or 11B. Advanced Portuguese course with cultural activities, field trips, and luncheons. Offered in summer only. P/NP or letter grading.

**26. Language and Popular Culture (4)** Lecture, three hours. Requisite: course 3 or 11B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity. Letter grading.

**26A. Language and Popular Culture: Summer Course (4)** Lecture, 20 hours. Enforced requisite: course 3 or 11B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity. Includes cultural activities, field trips, and luncheons. Offered in summer only. P/NP or letter grading.

**27. Writing Studies: Afro-Luso-Brazilian World (4)** Lecture, three hours. Requisite: course 3 or 11B. Further development of communicative skills, especially writing. Discussions and activities increase knowledge and ability to comprehend variety of forms of cultural production in Portuguese language. Students continue to acquire cultural competence. Introduction to study of literature, with specific focus on themes and topics pertinent to Lusophone world. P/NP or letter grading.

**27A. Advanced Composition and Style: Summer Course (4)** Lecture, 20 hours. Enforced requisite: course 3 or 11B. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns. Includes cultural activities, field trips, and luncheons. Offered in summer only. P/NP or letter grading.

**35. Spanish, Portuguese, and Nature of Language (5)** (Same as Spanish M35.) Lecture, three hours; discussion, one hour. Introduction to language study within context of Romance languages, focusing on Spanish and Portuguese. Nature of language: structure, diversity, evolution, social and cultural settings, literary uses. Study of language and its relation to other areas of human knowledge. P/NP or letter grading.

**40A. Portuguese, Brazilian, and African Literature in Translation: Portuguese and Portuguese-African Literature (4)** Lecture, three hours. Reading and discussion of selected works in translation. Papers and examinations in English. P/NP or letter grading.

**40B. Portuguese, Brazilian, and African Literature in Translation: Brazilian Literature (5)** Lecture, four hours. Reading and discussion of selected works in translation. Papers and examinations in English. P/NP or letter grading.

**46. Brazil and Portuguese-Speaking World (5)** Lecture, four hours; discussion, one hour (when scheduled). Taught in English. Topical analysis of cultural history of Brazil in context of Portuguese-speaking world, with emphasis on comparative, trans-Atlantic relations, social development, and artistic manifestations. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Phonology and Morphology (4)** Lecture, four hours. Enforced requisite: course 27. Analysis of phonetic, phonemic, and morphological systems of Portuguese. P/NP or letter grading.

**100B. Syntax (4)** Lecture, four hours. Enforced requisite: course 27. Review of patterns of Portuguese language. P/NP or letter grading.

**122. Foundations in Visual Culture in Iberian, Latin American, and Luso-Brazilian Worlds (4)** (Same as Spanish M122.) Lecture, four hours. Requisite: course 25 or 26 or 27 or Spanish 25 or 27. Taught in English. Addresses specificities of visual culture in Spanish- and Portuguese-speaking worlds. Through critical engagement with wide range of visual materials—from 16th-century maps of Americas to YouTube videos of street protests in Chile; from Modernist architectural designs for new national capitals to telenovelas and colonial photographs; and everything in between—introduction to practices, processes, objects of study, and interdisciplinary critical frameworks of field of visual culture studies. By examining manifestations of visual culture from Iberian, Latin American, and Luso-Brazilian contexts, students gain culturally specific foundations of visual knowledge and skills of visual literacy. P/NP or letter grading.

**130A. Introduction to Literature in Portuguese (4)** Lecture, four hours. Requisite: course 25 or 26 or 27. Introduction to principal themes, currents, and authors from Brazil in context of Portuguese-speaking world. P/NP or letter grading.

**130B. Introduction to Literature in Portuguese (4)** Lecture, four hours. Requisite: course 25 or 26 or 27. Introduction to principal themes, currents, and authors from Brazil in context of Portuguese-speaking world. P/NP or letter grading.

**141A. Literature and Film in Portuguese (4)** Lecture, four hours. Taught in English. Study of intertextuality and dialogism, interactions between literary and cinematic fields, question of fidelity, and equivalents between literary and cinematic expression in Portuguese-speaking world. May be repeated for credit with topic change. P/NP or letter grading.

**141B. Film, Television, and Society in Brazil (4)** Lecture, four hours. Taught in English. Study of development, evolution, and impact of film and television in Brazil against backdrop of broader social, historical, and cultural contexts. May be repeated for credit. P/NP or letter grading.

**141C. Documentary Film (4)** Lecture, four hours. Taught in English. Overview of documentary film production in Portuguese-speaking world, with special focus on period since 1985. May be repeated for credit with topic change. P/NP or letter grading.

**142A. Brazil and Its Culture (4)** Lecture, four hours. Taught in English. Exploration of roots of contemporary Brazil through study of broad chronological periods from Portuguese colonization to present and how they shaped idea of Brazilian exceptionalism, racial mixture as source of national identity, and lusotropicalism and its influence on Brazilian historiography. May be repeated for credit with topic change. P/NP or letter grading.

**142B. Brazil and Portugal in Comparative Perspective (4)** Lecture, four hours. Taught in English. Study of social and cultural links between Portugal and Brazil, with emphasis on issues of migration, dialogue, and contention in historical context. May be repeated for credit with topic change. P/NP or letter grading.

**142C. Travel Narratives, Testimony, Autobiography (4)** (Formerly numbered 142C.) (Same as Comparative Literature M142.) Lecture, four hours. Taught in English. Exploration of travel, memory, and narrative in Portuguese-speaking world. Primary and secondary texts depict issues of displacement, cultural contact, and assimilation. Overview of connections among Portuguese-speaking cultures. May be repeated for credit with topic change. P/NP or letter grading.

**143A. Colony, Intellectuals, and History (4)** Lecture, four hours. Enforced requisite: course 27. Investigation of way that Brazilian maritime expansion from 15th to early 19th century was represented and interpreted in writings from across empire. May be repeated for credit with topic change. P/NP or letter grading.

**143B. Transatlantic Literature in Portuguese (4)** Lecture, four hours. Enforced requisite: course 27. Study of modern relations between Portugal and Portuguese-speaking world in literature and arts. May be repeated for credit with topic change. P/NP or letter grading.

**143C. Modernism, Modernity, and Identity (4)** Lecture, four hours. Requisite: course 25 or 26 or 27. Examination of concepts and practice of modernism in Portuguese-speaking world, with primary focus on 1920s. Reading and discussion, with emphasis on sociohistorical context, relations with European avant-garde, modernist poetics and polemics, and search for national identity as expressed in period's poetry and prose. May be repeated for credit with topic change. P/NP or letter grading.

**143D. Contemporary Literature in Portuguese (4)** Lecture, four hours. Requisite: course 25 or 26 or 27. Exploration of connections between literatures of Angola, Brazil, and Portugal against background of globalization and Internet. May be repeated for credit with topic change. P/NP or letter grading.

**175. Topics in Creative Writing and Literary Translation (4)** Seminar, three hours. Requisite: course 25 or 26 or 27. Exploration of art of translation or creative writing. Guest speakers or instructors include professional literary translators, poets, novelists, playwrights, and filmmakers who discuss theory, methodology, and practice of their art. May be repeated for credit with topic change. P/NP or letter grading.

**180. Topics in Visual Culture (4)** Lecture, four hours; discussion, one hour (when scheduled). Requisite: Portuguese 25 or 26 or 27. Study of visual knowledge production in Latin America and Iberia as complex relation between visual subjects, practices, and representation in Latin American, Afro-Luso-Brazilian, and Iberian contexts. Objects of analysis may include architecture and urban design, digital media and other technologies, documentaries, fashion, fictional and experimental films, graphic novels and other media, maps and cartography, photography, plastic arts, and art history, theater and performance, video, among others. May be repeated four times for credit with topic change. P/NP or letter grading.

**187FL. Special Studies: Readings in Portuguese (2)** Seminar, two hours. Requisite: course 27. Students must be concurrently enrolled in affiliated main course. Additional work in Portuguese to augment work assigned in main course, including reading and writing assignments. May be repeated for credit. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191. Undergraduate Variable Topics Seminars: Portuguese (4)** Seminar, three hours. Requisite: course 25 or 26 or 27. Research seminar on selected topics in Portuguese. Reading, discussion, and development of culminating project. Consult Schedule of Classes or department counselor for topic to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**195. Community Internships in Portuguese (4)** Tutorial, two hours; fieldwork, eight hours. Requisite: course 25 or 26 or 27. Limited to juniors/seniors. Community-engaged learning is teaching and learning strategy that integrates meaningful community service with instruction and critical reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. Students use cultural and linguistic knowledge acquired in classes and research in real-world setting through 8-10 hours per week of volunteer work in on- or off-campus organization or unit serving Brazilian and Portuguese-speaking community. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in Portuguese (2 to 4)** Tutorial, to be arranged. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**198A. Senior Honors Research in Portuguese I (4)** Tutorial, to be arranged. Preparation: completion of minimum of six upper-division major core courses with 3.7 grade-point average. Course 198A is enforced requisite to 198B. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May not be applied toward major requirements. Individual contract required. Letter grading.

**198B. Senior Honors Research in Portuguese II (2)** Tutorial, to be arranged. Preparation: completion of minimum of six upper-division major core courses with 3.7 grade-point average. Enforced requisite: course 198A. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May not be applied toward major requirements. Individual contract required. Letter grading.

**199. Directed Research in Portuguese (2 to 4)** Tutorial, to be arranged. Requisite: course 27. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M200. Research Resources (4)** (Same as Spanish M200.) Lecture, three hours. Identification and use of research resources for graduate students.

**201A. Literary Theory and Criticism (4)** (Same as Spanish M201A.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

**201B. Literary Theory and Criticism (4)** (Same as Spanish M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

**202. Synchronic Morphology and Phonology (4)** Lecture, three hours. Study of theoretical synchronic linguistics as applied to Portuguese.

**204A. Generative Grammar (4)** Lecture, three hours. Course 204A is requisite to 204B. Generative approach to the Portuguese language, with some consideration of bearing of syntax, semiology, and phonology on style, metaphor, and meter.

**204B. Generative Grammar (4)** Lecture, three hours. Requisite: course 204A. Generative approach to the Portuguese language, with some consideration of bearing of syntax, semiology, and phonology on style, metaphor, and meter.

**205A. Development of Portuguese and Spanish Languages (4)** (Same as Spanish M205A.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

**205B. Development of Portuguese and Spanish Languages (4)** (Same as Spanish M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

**224. Early Portuguese Literature (4)** Lecture, three hours. Enforced requisite: course 27. Study of main genres of medieval Portuguese and Galician literature through representative works. S/U or letter grading.

**225. Camoes and Portuguese Renaissance (4)** Lecture, three hours. Enforced requisite: course 27. Study of main genres of Renaissance Portuguese literature, with particular emphasis on works of Luis de Camões. S/U or letter grading.

**226. Baroque and Neoclassical Portuguese Literature (4)** Lecture, three hours. Enforced requisite: course 27. Study of main genres of baroque and neoclassical Portuguese literature through representative works. S/U or letter grading.

**227. 19th-Century Portuguese Literature (4)** Lecture, three hours. Enforced requisite: course 27. Study of principal features through representative works. May be repeated for credit with topic change. S/U or letter grading.

**228. Post-Romanticism and Naturalism in Portuguese Literature (4)** Lecture, three hours. Enforced requisite: course 27. Study of principal features through representative works. S/U or letter grading.

**229. 20th-Century Portuguese Literature (4)** Lecture, three hours. Enforced requisite: course 27. Study of representative trends and authors. May be repeated for credit with topic change. S/U or letter grading.

**231. Colonial Brazilian Literature and Culture (4)** Lecture, three hours. Enforced requisite: course 27. Study of most important authors to 1830. May be repeated for credit with topic change. S/U or letter grading.

**232. 19th-Century Brazilian Literature and Culture (4)** Lecture, three hours. Study of representative trends and authors. May be repeated for credit with topic change. S/U or letter grading.

**233. Machado de Assis (4)** Lecture, three hours. Study of selected works by Joaquim Maria Machado de Assis. S/U or letter grading.

**234. Brazilian Modernism (4)** Lecture, three hours. Enforced requisite: course 27. Study of principal characteristics of Brazilian modernism through representative works. S/U or letter grading.

**235. 20th-Century Brazilian Literature (4)** Lecture, three hours. Enforced requisite: course 27. Study of representative trends and authors. May be repeated for credit with topic change. S/U or letter grading.

**251A. Studies in Galean-Portuguese and Old Spanish (4)** (Same as Spanish M251A.) Lecture, two hours. Study of problems related to historical development of Galean-Portuguese and Old Spanish. May be repeated once with topic change and consent of appropriate guidance committee.

**251B. Studies in Galean-Portuguese and Old Spanish (4)** (Same as Spanish M251B.) Lecture, two hours. Study of problems related to historical development of Galean-Portuguese and Old Spanish. May be repeated once with topic change and consent of appropriate guidance committee.

**252. Studies in Early Portuguese Literature (4)** Discussion, two hours. S/U or letter grading.

**253. Studies in Modern Portuguese Literature (4)** Discussion, two hours. S/U or letter grading.

**254. Studies in Early Brazilian Literature (4)** Discussion, two hours. S/U or letter grading.

**255. Studies in Modern Brazilian Literature (4)** Discussion, two hours. S/U or letter grading.

**256A. Studies in Portuguese Linguistics (4)** Lecture, two hours. Study of problems in analysis and description of contemporary Portuguese language. S/U or letter grading.

**256B. Studies in Portuguese Linguistics (4)** Lecture, two hours. Study of problems in analysis and description of contemporary Portuguese language. S/U or letter grading.

**290. Special Topics (4)** Discussion, two hours. Designed for graduate students. Consult Schedule of Classes or department counselor for topics to be offered in a specific term. S/U or letter grading.

**296. Graduate Research Group (2)** Research group meeting, two hours. Limited to graduate students. Designed to bring together graduate students in seminar setting with one or more faculty members to discuss and critique individual research projects, especially dissertation research. S/U grading.

**297A. Proseminar I (2)** (Same as Spanish M297A.) Proseminar, two hours. Limited to graduate students. Introduction to doctoral study and to professions. Designed to bring together first-year graduate students in seminar setting to discuss how to define their own work in relation to literary, linguistic, and/or cultural studies, broader humanities field, and our various communities. S/U grading.

**297B. Proseminar II (2)** (Same as Spanish M297B.) Proseminar, two hours. Limited to graduate students. Designed to bring together third-year graduate students in seminar setting to discuss transition to independent research, conception of dissertation, presentation of research findings (publications and conferences), and preparation for job market. S/U grading.



**370. Teaching Portuguese in Secondary School (4)** Discussion, three hours. Designed for future teachers in this field. Letter grading.

**596. Directed Individual Study or Research (4 to 12)** Tutorial, to be arranged. Study or research in areas or subjects not offered as regular courses. The number of units that can be applied toward MA requirements varies by area/track of study within the department. Consult the department for details. S/U or letter grading.

**597. Preparation for Graduate Examinations (4 to 12)** Tutorial, to be arranged. Preparation: official acceptance of candidacy by department. Individual preparation for MA comprehensive examination or PhD qualifying examinations. May be taken only once for each degree examination and only in term that comprehensive or qualifying examinations are to be taken. S/U grading.

**598. Research for MA Thesis (4 to 12)** Tutorial, to be arranged. Research in preparation of MA thesis. S/U grading.

**599. Research for PhD Dissertation (4 to 12)** Tutorial, to be arranged. Limited to students who have passed PhD qualifying examinations. Research for and preparation of PhD dissertation. S/U grading.

## Spanish Courses

### Lower Division

**1. Elementary Spanish (4)** Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Introductory Spanish language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

**1G. Reading Course for Graduate Students (4)** Lecture, three hours. Knowledge of Spanish not required. May not be applied toward degree requirements. S/U grading.

**2. Elementary Spanish (4)** Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Introductory Spanish language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

**2A. Intensive Spanish (4)** Lecture, 20 hours; laboratory, five hours. Enforced requisite: course 1 or one year of high school Spanish. Intensive basic course in Spanish, with cultural activities, field trips, luncheons. Offered in summer only. P/NP or letter grading.

**2G. Reading Course for Graduate Students (4)** Lecture, three hours. Enforced requisite: course 1G. May not be applied toward degree requirements. S/U grading.

**3. Elementary Spanish (4)** Lecture, three hours; laboratory, two hours. Enforced requisite: course 2 with grade of C or better or Spanish placement test. Taught in Spanish. Laboratory is online. Introductory Spanish language and culture course that is proficiency-oriented, communicative, and task-based to help develop communicative competence in four skill areas (listening, speaking, reading, and writing), as well as cultural competence. P/NP or letter grading.

**3A. Intensive Spanish (4)** Lecture, 20 hours; laboratory, five hours. Enforced requisite: course 1 or one year of high school Spanish. Intensive basic course in Spanish, with cultural activities, field trips, luncheons. Offered in summer only. P/NP or letter grading.

**4. Intermediate Spanish (4)** Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Intermediate Spanish language and culture course designed to increase communicative ability. Acquisition of cultural competence and introduction to study of literature. Comprehension of conversations and stretches of connected discourse, reading of texts with minimum use of dictionary, writing with increased grammatical accuracy and control of sentence structure, coherence, and text organization, talking about past, present, and future events, and expression of preferences, feelings, beliefs, and opinions. P/NP or letter grading.

**5. Intermediate Spanish (4)** Lecture, three hours; laboratory, two hours. Taught in Spanish. Laboratory is online. Intermediate Spanish language and culture course designed to increase communicative ability. Acquisition of cultural competence and introduction to study of literature. Comprehension of conversations and stretches of connected discourse, reading of texts with minimum use of dictionary, writing with increased grammatical accuracy and control of sentence structure, coherence, and text organization, talking about past, present, and future events, and expression of preferences, feelings, beliefs, and opinions. P/NP or letter grading.

**7A. Introductory Spanish for Heritage Speakers (4)** Lecture, three hours; laboratory, two hours. Laboratory is online. Designed for students who are from Spanish-speaking family background and have some knowledge of Spanish. Introductory course to further develop communicative abilities, both verbal and written, and to increase knowledge of grammatical structures and achieve communicative competence. P/NP or letter grading.

**7B. Intermediate Spanish for Heritage Speakers (4)** Lecture, three hours; laboratory, two hours. Enforced requisite: course 3 or 7A or Spanish placement test. Laboratory is online. Designed for students who are from Spanish-speaking family background and have some knowledge of Spanish. Intermediate course to further develop communicative abilities, both verbal and written, and to increase knowledge of grammatical structures and achieve communicative competence. P/NP or letter grading.

**8A. Spanish Conversation (2)** Discussion, three hours. Course 8A is open to students with credit for course 4 or equivalent. Students who have completed course 3 with grade of B or better may be admitted. P/NP or letter grading.

**8B. Spanish Conversation (2)** Discussion, three hours. Course 8A is open to students with credit for course 4 or equivalent. Students who have completed course 3 with grade of B or better may be admitted. P/NP or letter grading.

**9A. Advanced Conversation (2)** Discussion, three hours. Enforced requisite: course 8B. P/NP or letter grading.

**9B. Advanced Conversation (2)** Discussion, three hours. Enforced requisite: course 8B. P/NP or letter grading.

**10. Intensive Elementary Spanish (12)** Lecture, 20 hours. Intensive elementary instruction in speaking, listening, reading, and writing equivalent to courses 1, 2, and 3, with emphasis on Spanish grammar and Hispanic culture. Offered in summer only. P/NP or letter grading.

**11A. Catalan Language and Culture I (4)** Lecture, six hours. Part one of two-term accelerated language sequence equivalent to three terms of traditional instruction. Introduction to Catalan language and culture from wide range of activities focused on task-based and communicative approaches. Study involves variety of activities, which are designed to develop learners' listening, reading, speaking, and writing skills. P/NP or letter grading.

**11B. Catalan Language and Culture II (4)** Lecture, six hours. Requisite: course 11A or equivalent. Part two of two-term accelerated language sequence equivalent to three terms of traditional instruction. Study offers more advanced knowledge of Catalan language and culture from wide range of activities focused on task-based and communicative approaches. Study involves variety of activities, which are designed to develop learners' listening, reading, speaking, and writing skills. P/NP or letter grading.

**12A. Basque Language and Culture I (4)** Lecture, five hours. Introduction to Basque language and culture. Part I of three-term language sequence with emphasis on listening, speaking, reading, writing, and cultural competence. P/NP or letter grading.

**12B. Basque Language and Culture II (4)** Lecture, five hours. Requisite: course 12A. Introduction to Basque language and culture. Part II of three-term language sequence with emphasis on listening, speaking, reading, writing, and cultural competence. P/NP or letter grading.

**12C. Basque Language and Culture III (4)** Lecture, five hours. Requisite: course 12B. Introduction to Basque language and culture. Part III of three-term language sequence with emphasis on listening, speaking, reading, writing, and cultural competence. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**25. Advanced Spanish Composition (4)** Lecture, three hours. Requisite: course 5. Emphasis on development of communicative abilities, both verbal and written, as well as on increasing comprehension of variety of forms of cultural production in Spanish language and on preparation for more advanced Spanish courses. P/NP or letter grading.

**27. Advanced Spanish Composition for Heritage Speakers (4)** Lecture, three hours. Requisite: course 5. Practice in reading and writing of Spanish for students with oral proficiency in Spanish (in lieu of course 25). P/NP or letter grading.

**28A. Spanish for Special Purposes: Medical (4)** Lecture, three hours. Requisite: course 3. Practice in speaking, reading, and writing Spanish using appropriate vocabulary and cultural situations for students with special interest in fields such as medicine, business, law, etc. P/NP or letter grading.

**28B. Spanish for Special Purposes: Business (4)** Lecture, three hours. Recommended requisite: course 3. Introduction to Spanish language and its diverse cultures in variety of business settings. Offers opportunities to practice

simple language that may be useful in airports, hotels, restaurants, and informal and professional settings where Spanish is target language. P/NP or letter grading.

**35. Spanish, Portuguese, and Nature of Language (5)** (Same as Portuguese M35.) Lecture, three hours; discussion, one hour. Introduction to language study within context of Romance languages, focusing on Spanish and Portuguese. Nature of language: structure, diversity, evolution, social and cultural settings, literary uses. Study of language and its relation to other areas of human knowledge. P/NP or letter grading.

**42. Iberian Cultures (5)** Lecture, four hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spain, with emphasis on artistic, economic, social, and historical development as background for upper-division courses. P/NP or letter grading.

**44. Latin American Cultures (5)** Lecture, four hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spanish America, with emphasis on artistic, economic, social, and historical development as background for upper-division courses. P/NP or letter grading.

**60A. Hispanic Literatures in Translation: Spanish Literature (4)** Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations in English.

**60B. Hispanic Literatures in Translation: Spanish-American Literature (4)** Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations in English.

**60C. Hispanic Literatures in Translation: Don Quijote (4)** Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations in English.

**88. Lower-Division Seminar (4)** Seminar, three hours. Knowledge of Spanish not essential. Variable topics courses designed to explore various themes and issues pertinent to Hispanic literature and culture.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97. Variable Topics in Spanish (2)** Lecture, two hours. Variable topics course with lectures, discussions, and papers; consult Schedule of Classes or department counselor for topic to be offered in specific term. May be repeated for credit. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP or letter grading.

## Upper Division

**100A. Introduction to Study of Spanish Grammar: Phonology and Morphology (4)** Lecture, four hours. Requisite: course M35. Analysis of phonemic and morphological systems of Spanish. P/NP or letter grading.

**100B. Introduction to Study of Spanish Grammar: Syntax (4)** Lecture, four hours. Requisite: course M35. Study of syntactical systems of Spanish. P/NP or letter grading.

**105. Advanced Spanish Grammar (4)** Lecture, four hours. Requisite: course 25. Comprehensive review of Spanish grammar with attention given to advanced concepts and structures that are not covered in lower-level courses. Development of writing skills through application of grammar concepts. P/NP or letter grading.

**107. Advanced Spanish Grammar for Heritage Speakers (4)** Lecture, four hours. Requisite: course 27. Stresses acquisition of standard and formal registers and advanced grammatical structures, accentuation, orthography, and avoidance of vocabulary and sentence structure. Draws from existing linguistic background to perfect grammar and writing in Spanish. Comprehensive review of Spanish grammar with attention given to advanced concepts and structures that are not covered in lower-level courses. Development of writing skills through application of grammar concepts. P/NP or letter grading.

**119. Introduction to Literary Analysis (4)** Lecture, four hours. Requisite: course 25 or 27. Introduction to methods of analyzing literary work in Spanish, Spanish-American, and Chicana/Chicano literature. Special attention to four major genres: poetry, narrative, drama, and essay. P/NP or letter grading.

**120. Literature in Historical Context (4)** Lecture, four hours; discussion, one hour. Requisite: course 25 or 27. Introduction to different ways of looking at literary works as historical phenomena. Presentation of major models for writing history—great narratives, cyclic, teleological, sacred, and profane conceptions. Traditional concepts of literary history and problems of mixed categories (historical epochs versus epochs of style, national history, and world literature). P/NP or letter grading.

**122. Foundations in Visual Culture in Iberian, Latin American, and Luso-Brazilian Worlds (4)** (Same as Portuguese M122.) Lecture, four hours. Requisite: course 25 or 27 or Portuguese 25 or 26 or 27. Taught in English. Addresses specificities of visual culture in Spanish- and Portuguese-speaking worlds. Through critical engagement with wide range of visual materials—from 16th-century maps of Americas to YouTube videos of street protests in Chile; from Modernist architectural designs for new national capitals to telenovelas and colonial photographs; and everything in between—introduction to practices, processes, objects of study, and interdisciplinary critical frameworks of field of visual culture studies. By examining manifestations of visual culture from Iberian, Latin American, and Luso-Brazilian contexts, students gain culturally specific foundations of visual knowledge and skills of visual literacy. P/NP or letter grading.

**130. Topics in Medieval Studies (4)** Lecture, four hours. Requisites: courses 25 or 27, and 119. Exploration of medieval Iberian literatures: lyric poetry, prose, and history of peninsula, with emphasis on its literary and linguistic diversity. Possible topics include Convivencia (peaceful coexistence), Europe and Orient, beginnings of Inquisition, oral versus written traditions, origins of Hispano-Christian expansion beyond peninsula, and flowering of Al-Andalus. May be repeated for credit with topic change. P/NP or letter grading.

**135. Topics in Early Modern Studies (4)** Lecture, four hours; discussion, one hour (when scheduled). Enforced requisites: courses 25 or 27, and 119. Exploration of 16th and 17th centuries, with focus on early modern period of Spain and Spanish America. Possible topics include Spanish colonization and indigenous responses, transatlantic literary and visual baroque, race and religion in construction of early modern nation, transatlantic fictions, early modern identities and theatrical representations, literature and historiography, transatlantic poetics and poetry. May be repeated for credit with topic change. P/NP or letter grading.

**140. Topics in Modern Studies (4)** Lecture, four hours. Requisites: courses 25 or 27, and 119. Exploration of major literary movements and writers of 18th and 19th centuries in Spain and Spanish America. Possible topics include Enlightenment, Romanticism, nation-building literature, realism and naturalism, and works by Cadalso, Concolorcorvo, Lizardi, Larra, Sarmiento, Bécquer, Isaacs, Mera, Villaverde, and Galdós. May be repeated for credit with topic change. P/NP or letter grading.

**150. Topics in Contemporary Studies (4)** Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 25 or 27, and 119. Exploration of main trends that characterize contemporary Latin American and Spanish literatures and cultures and main concepts used to address them. Possible topics include transculturation and heterogeneity, race and ethnicity, vanguard movements, lettered and popular cultures, literary modernization in Latin American boom, literature and revolution, autobiography, women's writing, border literature, and postmodernist fiction. May be repeated for credit with topic change. P/NP or letter grading.

**155. Topics in U.S. Latina/o Studies (4)** (Formerly numbered 155C.) Lecture, four hours. Enforced requisite: course 25 or 27. Exploration of spread of Spanish-American literature and culture throughout North America, including literatures that are outgrowth of civil rights movements of 1960s, recent demographic changes, new transnational identities, and mixed citizenships of U.S. Latinas and Latinos. Chicano, Puerto Rican, Cuban American, Central American-American, South American-American, and Jewish Latino literatures may be included. May be repeated for credit with topic change. P/NP or letter grading.

**160. Topics in Spanish Linguistics (4)** Lecture, four hours. Requisite: course 25 or 27. Exploration of origin of language, how Spanish is acquired, evolution of Spanish from Latin to early modern period, how Spanish varies in world, how to teach Spanish, Spanish in contact with other languages. Possible topics include Spanish in Los Angeles, history of Spanish language, first- and second-language acquisition, language and cognition. May be repeated for credit with topic change. P/NP or letter grading.

**165XP. Taking It to Street: Spanish in Community (5)** (Same as Chicana/o and Central American Studies M167XP.) Seminar, three hours; fieldwork, 10 hours. Enforced prerequisite: course 25 or 27. Service learning course to give students opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Students required to spend minimum of eight to 10 hours per week at agreed on site in Latino community. P/NP or letter grading.

**170. Topics in Interdisciplinary and Transhistorical Studies (4)** Lecture, four hours; discussion, one hour (when scheduled). Prerequisite: course 25 or 27, 119. Comparative study of cultural production in Latin American, Afro-Luso-Brazilian, and Iberian contexts across diverse historical periods, regional, and ethnic traditions, and aesthetic modes. Possible topics include Afrolatinidad; diaspora; feminism; folklore; gender; globalization; indigeneity and indigenous studies (Andean, Mesoamerican, Amazonian, Tupi, and Tapuia); migration and immigration; music (1960s Latin American protest songs, nueva canción, música regional, punk, rap, folk); popular culture; regionalisms. May be repeated for credit with topic change. P/NP or letter grading.

**172XP. Topics in Community Engagement (5)** (Formerly numbered M172SL.) (Same as Chicana/o and Central American Studies M170XP.) Seminar, four hours; field project, four to six hours. Prerequisite: course 25. Introduction to community engagement in various forms. Exploration of methods of community involvement and change making processes within variety of professional contexts in community. Students engage in experiential research, service, and/or learning to broaden their understanding of Spanish-speaking and Latinx communities. Students have opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Topics may include oral tradition, immigrant narratives, visual culture and community, language and identity in community, urban spaces, etc. May be repeated for credit with topic change. P/NP or letter grading.

**175. Topics in Creative Writing and Translation (4)** Seminar, three hours. Prerequisites: courses 25 or 27, and 119. Exploration of art of translation or creative writing. Guest speakers or instructors include professional literary translators, poets, novelists, playwrights, and filmmakers who discuss theory, methodology, and practice of their art. May be repeated for credit with topic change. P/NP or letter grading.

**180. Topics in Visual Culture (4)** (Formerly numbered M180.) Lecture, four hours; discussion, one hour (when scheduled). Prerequisites: courses 25 or 27, 119. Study of visual knowledge production in Latin America and Iberia as complex relation between visual subjects, practices, and representation. Objects of analysis may include architecture and urban design, digital media and other technologies, documentaries, fashion, fictional and experimental films, graphic novels and other media, maps and cartography, photography, plastic arts and art history, theater and performance, video, among others. May be repeated four times for credit with topic change. P/NP or letter grading.

**187A. Advanced Tutorial in Community and Culture I (1)** Tutorial, one hour. Prerequisite: course 25 or 27. Designed as adjunct to upper-division course in Hispanic literature, language, and culture. Exploration of topics in greater depth through supplemental readings, papers, community service, or other activities. May be repeated once for credit. P/NP or letter grading.

**187B. Advanced Tutorial in Community and Culture II (2)** Tutorial, one hour. Prerequisite: course 25 or 27. Designed as adjunct to upper-division course in Hispanic literature, language, and culture. Exploration of topics in greater depth through supplemental readings, papers, community service, or other activities. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**191A. Variable Topics in Spanish: Studies in Hispanic Literature and Linguistics (4)** Seminar, three hours. Limited to 15 junior/senior Spanish majors. Variable topics course with readings, discussions, and development of culminating paper. Consult Schedule of Classes or department counselor for topic to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**191B. Variable Topics in Spanish: Studies in Hispanic Culture and Civilization (4)** Seminar, three hours. Advanced variable topics course that studies diverse aspects of Hispanic culture, civilization, and history. Classroom discussions, development of culminating paper, and examinations in Spanish. May be repeated for credit with topic change. P/NP or letter grading.

**191C. Senior Capstone Seminar (4)** Seminar, three hours. Enforced prerequisites: courses 119, 120, and at least three upper-division elective courses required for majors. Limited to senior Spanish majors. Knowledge from previous coursework used to address current trends in discipline; students work with one faculty member on one focused research topic. Culminating paper required. Letter grading.

**195. Community Internships in Spanish (4)** Tutorial, one hour; fieldwork, 10 hours. Prerequisite: course 25 or 27. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide journal of their experience. Final research paper required. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in Spanish (2 to 4)** Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

**198A. Senior Honors Research in Spanish I (4)** Tutorial, to be arranged. Preparation: completion of minimum of six upper-division major core courses with 3.7 grade-point average. Course 198A is enforced prerequisite to 198B. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May not be applied toward major requirements. Individual contract required. Letter grading.

**198B. Senior Honors Research in Spanish II (2)** Tutorial, to be arranged. Preparation: completion of minimum of six upper-division major core courses with 3.7 grade-point average. Enforced prerequisite: course 198A. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May not be applied toward major requirements. Individual contract required. Letter grading.

**199. Directed Research in Spanish (2 to 4)** Tutorial, to be arranged. Prerequisite: course 25. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M200. Research Resources (4)** (Same as Portuguese M200.) Lecture, three hours. Identification and use of research resources for graduate students.

**201A. Literary Theory and Criticism (4)** (Same as Portuguese M201A.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

**201B. Literary Theory and Criticism (4)** (Same as Portuguese M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

**202A. Phonology (4)** Lecture, three hours. Study of the sound structure of Spanish and main phonological processes that map underlying representations into surface representations. Bearing of phonological theory on study of meter.

**202B. Morphology (4)** Lecture, three hours. Study of derivational and inflectional word formation processes and their interaction with syntactic structure.

**204A. Generative Syntax and Semantics (4)** Lecture, three hours. Study of syntactic structure of Spanish and relation between underlying representations and logical form within a principles-and-parameters framework. Bearing of syntactic and semantic structure on study of literature.

**204B. Generative Syntax and Semantics (4)** Lecture, three hours. Study of syntactic structure of Spanish and relation between underlying representations and logical form within a principles-and-parameters framework. Bearing of syntactic and semantic structure on study of literature.

**205A. Development of Portuguese and Spanish Languages (4)** (Same as Portuguese M205A.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

**205B. Development of Portuguese and Spanish Languages (4)** (Same as Portuguese M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

**209. Dialectology (4)** Lecture, three hours. Major dialect areas of peninsular and American Spanish, with distinguishing features of each. Influence and contribution of cultural and historical features, including indigenous languages, to their formation.

**221. Medieval Lyric Poetry (4)** Lecture, three hours. Readings of and lectures on Spanish lyric poetry from the beginning to 1500.

**222. Medieval Epic and Narrative Poetry (4)** Lecture, three hours. Readings of and lectures on Spanish epic and narrative poetry from the beginning to 1500.

**223. Medieval Prose (4)** Lecture, three hours. Readings of and lectures on Spanish prose from the beginning to 1500.

**224. Poetry of the Golden Age (4)** Lecture, three hours. Readings of and lectures on Spanish poetry from 1500 to 1700.

**225. Drama of the Golden Age (4)** Lecture, three hours. Readings of and lectures on the comedia.

**226. Prose of the Golden Age (4)** Lecture, three hours. Readings of and lectures on fictional, didactic, religious, and historical writings.

**227. Cervantes (4)** Lecture, three hours. Readings of and lectures on works of Cervantes.

**228. The Enlightenment (4)** Lecture, three hours. Readings of and lectures on representative works of the period.

**229. Romanticism (4)** Lecture, three hours. Readings of and lectures on representative works of the period.

**230. Realism and Naturalism (4)** Lecture, three hours. Readings of and lectures on literary works, principally novels, from 1850 to 1898.

**231. Major Currents in Modern Spanish Literature (4)** Lecture, three hours. Introduction to major literary currents, including symbolism, Parnassianism, and the Generation of 1898.

**232. Spanish Prose Literature from 1898 to the Civil War (4)** Lecture, three hours. Readings of and lectures on representative essays, novels, and short stories of the period.

**233. Spanish Prose Literature after the Civil War (4)** Lecture, three hours. Readings of and lectures on representative essays, novels, and short stories of the period.

**234. Spanish Drama and Poetry from 1898 to the Civil War (4)** Lecture, three hours. Readings of and lectures on representative plays and poems.

**235. Spanish Drama and Poetry after the Civil War (4)** Lecture, three hours. Readings of and lectures on representative plays and poems of the period.

**237. Literature of the Spanish Conquest (4)** Lecture, three hours. Readings of and lectures on chronicles, poems, and indigenous accounts of the Spanish Conquest.

**238. Baroque, Enlightenment, and Neoclassicism in Colonial Literature (4)** Lecture, three hours. Readings of and lectures on representative texts.

**239. Romanticism and Realism in Spanish-American Literature (4)** Lecture, three hours. Intensive study of Romanticism and realism in Spanish-American literature.

**240. Major Currents in Modern Spanish-American Literature (4)** Lecture, three hours. Study of principal trends in modern Spanish-American literature, particularly naturalismo and modernismo.

**241A. Contemporary Spanish-American Short Story (4)** Lecture, three hours. Study of important short story writers from modernism to the present.

**241B. Contemporary Spanish-American Short Story (4)** Lecture, three hours. Study of important short story writers from modernism to the present.

**243A. Contemporary Spanish-American Poetry (4)** Lecture, three hours. Intensive study of important poets of Spanish America from modernism to the present.

**243B. Contemporary Spanish-American Poetry (4)** Lecture, three hours. Intensive study of important poets of Spanish America from modernism to the present.

**244A. Contemporary Spanish-American Novel (4)** Lecture, three hours. Study of important novelists from modernism to the present.

**244B. Contemporary Spanish-American Novel (4)** Lecture, three hours. Study of important novelists from modernism to the present.

**245. Contemporary Spanish-American Essay (4)** Lecture, three hours. Study of important Spanish-American essayists of the 20th century.

**246. Contemporary Spanish-American Drama (4)** Lecture, three hours. Study of principal Spanish-American dramatists and theater movements in the 20th century.

**247. Chicano Literature (4)** (Same as Chicana/o and Central American Studies M247.) Lecture, three hours. Study of major movements and authors of Mexican American literature. S/U or letter grading.

**251A. Studies in Galegan-Portuguese and Old Spanish (4)** (Same as Portuguese M251A.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish.

**251B. Studies in Galegan-Portuguese and Old Spanish (4)** (Same as Portuguese M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish.

**256A. Studies in Spanish Linguistics (4)** Lecture, two hours. Study of problems in analysis and description of the contemporary Spanish language.

**256B. Studies in Spanish Linguistics (4)** Lecture, two hours. Study of problems in analysis and description of the contemporary Spanish language.

**257. Studies in Dialectology (4)** Discussion, two hours.

**262A. Studies in Medieval Spanish Literature (4)** Discussion, two hours.

**262B. Studies in Medieval Spanish Literature (4)** Discussion, two hours.

**264A. Studies in Golden Age Spanish Literature (4)** Discussion, two hours.

**264B. Studies in Golden Age Spanish Literature (4)** Discussion, two hours.

**265. Cervantes (4)** Discussion, two hours.

**270A. Studies in 18th-Century Spanish Literature (4)** Discussion, two hours.

**270B. Studies in 18th-Century Spanish Literature (4)** Discussion, two hours.

**271A. Studies in 19th-Century Spanish Literature (4)** Discussion, two hours.

**271B. Studies in 19th-Century Spanish Literature (4)** Discussion, two hours.

**272A. Studies in 20th-Century Spanish Literature (4)** Discussion, two hours.

**272B. Studies in 20th-Century Spanish Literature (4)** Discussion, two hours.

**277A. Studies in Colonial Spanish-American Literature (4)** Discussion, two hours.

**277B. Studies in Colonial Spanish-American Literature (4)** Discussion, two hours.

**278A. Studies in 19th-Century Spanish-American Literature (4)** Discussion, two hours.

**278B. Studies in 19th-Century Spanish-American Literature (4)** Discussion, two hours.

**280A. Studies in Contemporary Spanish-American Literature (4)** Discussion, two hours.

**280B. Studies in Contemporary Spanish-American Literature (4)** (Formerly numbered 280B.) (Same as Comparative Literature M281.) Seminar, three hours. Preparation: reading knowledge of one foreign language. In-depth study of topic of Latin American literature in comparative context. May be repeated for credit. S/U or letter grading.

**281. Studies in Chicano Literature (4)** Discussion, two hours.

**290. Special Topics (4)** Lecture, two hours. Variable topics; consult Schedule of Classes or department counselor for topics to be offered in a specific term.

**291A. Colonial Studies Research Group (2)** Research group meeting, two hours. Limited to graduate students. Course 291A is requisite to 291B. Discussion and analysis of colonial manuscripts. Specific topics vary from year to year. Production of student papers for publication and/or presentation at conferences or symposia. S/U grading.

**291B. Colonial Studies Research Group (2)** Research group meeting, two hours. Requisite: course 291A. Limited to graduate students. Discussion and analysis of colonial manuscripts. Specific topics vary from year to year. Production of student papers for publication and/or presentation at conferences or symposia. May be repeated for credit. S/U or letter grading.

**296. Graduate Research Group (2)** Research group meeting, two hours. Limited to graduate students. Designed to bring together graduate students in seminar setting with one or more faculty members to discuss and critique individual research projects, especially dissertation research. S/U grading.

**297A. Proseminar I (2)** (Same as Portuguese M297A.) Proseminar, two hours. Limited to graduate students. Introduction to doctoral study and to professions. Designed to bring together first-year graduate students in seminar setting to discuss how to define their own work in relation to literary, linguistic, and/or cultural studies, broader humanities field, and our various communities. S/U grading.

**297B. Proseminar II (2)** (Same as Portuguese M297B.) Proseminar, two hours. Limited to graduate students. Designed to bring together third-year graduate students in seminar setting to discuss transition to independent research, conception of dissertation, presentation of research findings (publications and conferences), and preparation for job market. S/U grading.

**370. Teaching Spanish in Secondary School (4)** Lecture, three hours. S/U or letter grading.

**490. Using Technology in Foreign Language Classroom (4)** Discussion, two hours. Designed for graduate students. Theory and practice of using technology in foreign language classroom. Computer applications that facilitate instruction of grammar, discourse, culture, and composition, as well as evaluation and communication between students and instructor. S/U grading.

**495. Teaching Spanish at College Level (4)** Seminar, to be arranged. Designed for graduate Spanish and Portuguese students. Basic concepts of modern theories of language and language acquisition which underlie modern methods of second language teaching. S/U grading.

**596. Directed Individual Study or Research (4 to 12)** Tutorial, to be arranged. Study or research in areas or subjects not offered as regular courses. The number of units that can be applied toward MA requirements varies by area/track of study within the department. Consult the department for details. S/U or letter grading.

**597. Preparation for Graduate Examinations (4 to 12)** Tutorial, to be arranged. Preparation: official acceptance of candidacy by department. Individual preparation for MA comprehensive examination or PhD qualifying examinations. May be taken only once for each degree examination and only in term that comprehensive or qualifying examinations are to be taken. S/U grading.

**598. Research for MA Thesis (4 to 12)** Tutorial, to be arranged. Research in preparation of MA thesis. S/U grading.

**599. Research for PhD Dissertation (4 to 12)** Tutorial, to be arranged. Limited to students who have passed PhD qualifying examinations. Research for and preparation of PhD dissertation. S/U grading.

# Statistics and Data Science

## Statistics Courses

### Lower Division

**10. Introduction to Statistical Reasoning (5)** Lecture, three hours; discussion, one hour; computer laboratory, two hours. Preparation: three years of high school mathematics. Not open for credit to students with credit for course 12, 13, or 15. Introduction to statistical thinking and understanding, including strengths and limitations of basic experimental designs, graphical and numerical summaries of data, inference, regression as descriptive tool. P/NP or letter grading.

**12. Introduction to Statistical Methods for Geography and Environmental Studies (5)** Lecture, four hours; discussion, one hour; laboratory, one hour. Not open for credit to students with credit for course 10, 11, or 13. Introduction to statistical thinking and understanding, with emphasis on techniques used in geography and environmental science. Underlying logic behind statistical procedures, role of variation in statistical thinking, strengths and limitations of statistical summaries, and fundamental inferential tools. Emphasis on applications in geography and environmental science in laboratory work using professional statistical analysis package, including spatial statistics. P/NP or letter grading.

**13. Introduction to Statistical Methods for Life and Health Sciences (5)** Lecture, three hours; discussion, one hour; laboratory, one hour. Not open for credit to students with credit for course 10, 10H, 11, 12, or 14. Presentation and interpretation of data, descriptive statistics, introduction to correlation and regression and to basic statistical inference (estimation, testing of means and proportions, ANOVA) using both bootstrap methods and parametric models. P/NP or letter grading.

**15. Introduction to Data Science (5)** Lecture, three hours; discussion, one hour; computer laboratory, one hour. Preparation: three years of high school mathematics. Not open to students with credit for course 10, 12, 13, or former course 10H, 11, or 14. Introduction to data science, including data management, data modeling, data visualization, communication of findings, and reproducible work. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Statistical Programming with R (4)** Lecture, three hours; discussion, one hour. Enforced requisite: one course from course 10, 12, 13, 15, Economics 41, or Psychology 100A, or score of 4 or higher on Advanced Placement Statistics Examination. Designed to prepare students for upper-division work in statistics. Introduction to use of R, including data management, simple programming, and statistical graphics in R. P/NP or letter grading.

**21. Python and Other Technologies for Data Science (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 20. Covers use of Python and other technologies for data analysis and data science. Focus on programming with Python and selection of its libraries: NumPy, pandas, matplotlib, and scikit-learn, for purpose of data processing, data cleaning, data analysis, and machine learning. Other technologies covered include Jupyter notebook and Git. Intended for Data Theory majors as introduction to Python language and libraries most frequently used in data science. Letter grading.

**35. Introduction to Probability with Applications to Poker (4)** Lecture, three hours; discussion, one hour. Exploration of some main topics in introductory probability theory, especially discrete probability problems, that are useful in wide variety of scientific applications. Topics include conditional probability and conditional expectation, combinatorics, laws of large numbers, central limit theorem, Bayes theorem, univariate distributions, Markov processes, and Brownian motion. Examination of computer simulation in depth and discussion of computational approximations of solutions to complex problems using R, with examples of situations and concepts that arise naturally when playing Texas Hold'em and other games. P/NP or letter grading.

**88. Sophomore Seminars: Statistics (2)** Seminar, two hours. Requisite: one course from 10, 11, 12, 13, or 14. Limited to 20 lower-division students. Readings and discussions designed to introduce students to current statistical consulting research and fieldwork disciplines. Culminating project may be required. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Introduction to Probability (4)** Lecture, three hours; discussion, one hour. Requisites: Mathematics 32B, 33A. Not open to students with credit for Electrical Engineering 131A or Mathematics 170A; open to graduate students. Students may receive credit for only two of following: course 100A, former course 110A, Biostatistics 100A. Probability distributions, random variables, vectors, and expectation. P/NP or letter grading.

**100B. Introduction to Mathematical Statistics (4)** Lecture, three hours; discussion, one hour. Requisite: course 100A or Mathematics 170A or 170E. Survey sampling, estimation, testing, data summary, one- and two-sample problems. P/NP or letter grading.

**100C. Linear Models (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 100B or Mathematics 170S. Theory of linear models, with emphasis on matrix approach to linear regression. Topics include model fitting, extra sums of squares principle, testing general linear hypothesis in regression, inference procedures, Gauss/Markov theorem, examination of residuals, principle component regression, stepwise procedures. P/NP or letter grading.

**101A. Introduction to Data Analysis and Regression (4)** Lecture, three hours; discussion, one hour. Requisites: one course from course 10, 12, 13, 15, Economics 41, or Psychology 100A, or score of 4 or higher on Advanced Placement Statistics Examination, and course 20. Recommended: course 102A. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical influence. P/NP or letter grading.

**101B. Introduction to Design and Analysis of Experiment (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101A. Fundamentals of collecting data, including components of experiments, randomization and blocking, completely randomized design and ANOVA, multiple comparisons, power and sample size, and block designs. P/NP or letter grading.

**101C. Introduction to Statistical Models and Data Mining (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 101A. Recommended: course 101B. Designed for juniors/seniors. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical influence. P/NP or letter grading.

**102A. Introduction to Computational Statistics with R (4)** Lecture, three hours; discussion, one hour. Requisites: course 20, Mathematics 33A, and one course from course 10, 12, 13, Economics 11, 41, or Psychology 100A, or score of 4 or higher on Advanced Placement Statistics Examination. Introduction to computational statistics through numerical methods and computationally intensive methods for statistical problems. Topics include statistical graphics, root finding, simulation, randomization testing, and bootstrapping. Covers intermediate to advanced programming with R. P/NP or letter grading.

**102B. Introduction to Computation and Optimization for Statistics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 100B (or Mathematics 170S), 102A, Mathematics 33A. Introduction to computational methods and optimization useful for statisticians. Use of computer programming to solve statistical problems. Topics include vector/matrix computation, multivariate normal distribution, principal component analysis, clustering analysis, gradient-based optimization, EM algorithm for missing data, and dynamic programming. P/NP or letter grading.

**102C. Introduction to Monte Carlo Methods (4)** Lecture, three hours; discussion, one hour. Requisites: courses 100B (or Mathematics 170S), 102A. Introduction to Markov chain Monte Carlo (MCMC) algorithms for scientific computing. Generation of random numbers from specific distribution. Rejection sampling and importance sampling and their roles in MCMC. Markov chain theory and convergence properties. Metropolis and Gibbs sampling algorithms. Extensions as simulated tempering. Theoretical understanding of methods and their implementation in concrete computational problems. P/NP or letter grading.

**105. Statistics for Engineers (4)** Lecture, three hours; discussion, one hour. Requisite: course 100A or Electrical Engineering 131A or Mathematics 170A. Foundation of basic concepts and techniques of statistics. Topics include sampling distributions, statistical estimation (including maximum likelihood estimation), statistical intervals, and hypothesis testing, with emphasis on application of these concepts. Discussion of methods for checking whether assumptions required for mathematical foundations are appropriate for given set of data. P/NP or letter grading.

**112. Statistics: Window to Understanding Diversity (5)** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: one course from course 10, 12, 13, Economics 11, 41, or Psychology 100A, or score of 4 or higher on Advanced Placement Statistics Examination. Limited to juniors/seniors. Statistical methods in social sciences, including regression, multivariate techniques, logistic regression, and data-handling and analysis. Applications to social sciences, using professional statistical analysis software package for data analysis. Letter grading.

**115. Probabilistic Decision Making (4)** Lecture, three hours; discussion, one hour. Requisite: course 100A. Recommended preparation: experience with Python. Formulation of decision making problem as probabilistic inference. Derivation algorithms for solving probabilistic decision making. Implementation of code that executes inference and decision. Covers Markov decision process, planning, search, and reinforcement learning. Letter grading.

**C116. Social Statistics (4)** Lecture, three hours. Preparation: some knowledge of basic calculus and linear algebra. Requisites: courses 100A and 100B, or 101B and 101C, or one course from 10, 11, 12, 13 and one upper-division statistics course using regression. Designed for social sciences graduate students and advanced undergraduate students seeking training in data issues and methods employed in social sciences. Concurrently scheduled with course C216. P/NP or letter grading.

**130. Getting Up to Speed with SPSS, Stata, SAS, and R (4)** Lecture, three hours; discussion, one hour. Preparation: basic statistics, basic computer literacy. Study of four commonly employed solutions—SPSS (Statistical Package for Social Sciences), Stata, SAS (Statistical Analysis System), and R—for data analytic and statistical issues in health sciences, engineering, economics, and government. Emphasis on applied problem solving, measurement issues in data analysis, use of computer for analysis of large-scale data. P/NP or letter grading.

**131. Python and Other Technologies for Data Analysis (4)** Lecture, three hours; discussion, one hour. Requisite: course 102A. Limited to junior/senior statistics majors and minors. Use of Python and other technologies for data analysis and data science. Focus on programming with Python and selection of its libraries—NumPy, pandas, Matplotlib, and scikit-learn—for purpose of data processing, data cleaning, data analysis, and machine learning. Other technologies covered include Jupyter notebook, Structured Query Language (SQL), and git. P/NP or letter grading.

**133. Introduction to Text Mining Using R (4)** Lecture, three hours; discussion, one hour. Limited to Statistics and Data Science Department students. Exposure to basic concepts of text data and text data analysis. Hands-on study covering use of text mining tools for purpose of data analysis. Covers basic text handling, natural language processing, clustering, classification, and statistical modeling applied on textual data. P/NP or letter grading.

**140XP. Practice of Statistical Consulting (4)** (Formerly numbered 140SL.) Lecture, one hour; discussion, two hours. Enforced requisites: courses 100B, 101B. Limited to seniors. Opportunity to solve real data analysis problems for real community-based or campus-based clients. Students work in small groups with faculty member and client to frame client's question in statistical terms, create statistical model, analyze data, and report results. Weekly meetings in classroom setting to study basic consulting skills, share experiences, exchange ideas, and make reports. On-site visits as necessary. Courses 140XP and 141XP must be taken in consecutive terms. In Progress grading (credit to be given only on completion of course 141XP).

**141XP. Practice of Statistical Consulting (4)** (Formerly numbered 141SL.) Seminar, one hour; discussion, one hour; research group meeting, two hours. Requisite: course 140XP. Limited to seniors. Opportunity to solve real data analysis problems for real community-based or campus-based clients. Students work in small groups with faculty member and client to frame client's

question in statistical terms, create statistical model, analyze data, and report results. Weekly meetings in classroom setting to study basic consulting skills, share experiences, exchange ideas, and make reports. On-site visits as necessary. Courses 140XP and 141XP must be taken in consecutive terms. Letter grading.

**143. Introduction to Research in Statistics (4)** Seminar, three hours. Requisites: courses 100B, 101B. Designed for Statistics majors/minors who are interested in research. Research topics in statistics that cover material not covered in regular statistics upper-division curriculum. Reading, discussion, and presenting influential papers in statistics. P/NP or letter grading.

**C145. History and Theory of Statistics (4)** Lecture, three hours. Enforced requisite: course 100B. History of statistical methodology and its role within scientific community. Philosophical tenets of statistics; use of concept of probability as transparent and relatively objective means of evaluating empirical observations. Theory of statistical hypothesis generation and hypothesis testing. Designed to provide understanding and perspectives on role of statistics in modern science, theory of statistics, and its strengths and weaknesses. Concurrently scheduled with course C245. P/NP or letter grading.

**147. Data Technologies for Data Scientists (2)** Lecture, two hours. Requisites: courses 100B or Mathematics 170S, 101A, 101C or Mathematics 156. Limited to seniors. Introduction to variety of tools and technologies used in data science. Prepares students for applied project work. Topics include use of collaborative repository hosting services allowing access control; secure cloud services platforms that cover computing power and database storage; open source artificial intelligence libraries. Recommended to be taken prior to or concurrently with course M148. Letter grading.

**148. Experience of Data Science (4)** (Same as Mathematics M148.) Lecture, four hours. Requisites: courses 100B or Mathematics 170S, 101A, 101C or Mathematics 156, Mathematics 118, 131A. Students solve real data science problems for community- or campus-based clients. Students work in small groups with faculty member and client to frame client's question in data science terms, create mathematical models, analyze data, and report results. Students may elect to undertake research on foundations of data science, studying advanced topics and writing senior thesis with discussion of findings or survey of literature on chosen foundational topic. Development of collaborative skills, communication principles, and discussion of ethical issues. Letter grading.

**C151. Experimental Design (4)** Lecture, three hours. Requisites: courses 100C, 101A. Basic principles, analysis of variance, randomized block designs, Latin squares, balanced incomplete block designs, factorial designs, fractional factorial designs, minimum aberration designs, robust parameter designs. Concurrently scheduled with course C225. P/NP or letter grading.

**154. Measurement and Its Applications (4)** (Same as Psychology M144.) Lecture, three hours. Requisite: one course from 10, 12, 13, or Psychology 100A. Selected theories for quantification of psychological, educational, social, and behavioral science data. Classical test, factor analysis, generalizability, item response, optimal scaling, ordinal measurement, computer-adaptive, and related theories. Construction of tests and measures and their reliability, validity, and bias. P/NP or letter grading.

**C155. Applied Sampling (4)** Lecture, three hours; discussion, one hour. Designed for upper-division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. Concurrently scheduled with course CM248. P/NP or letter grading.

**157. Probability and Statistics Data Modeling and Analysis using Statistics Online Computational Resource (4)** Lecture, three hours; discussion, one hour. Preparation: one engineering, mathematics, physics, or statistics course. Recommended requisite: Program in Computing 20A. Probability and statistics topics in data-driven and interactive manner using open Internet resources. Varieties of data, study-designs, and applications arising from biomedical, research, and simulated data to prepare students for innovative multidisciplinary research. Use of Statistics Online Computational Resource (SOCR). P/NP or letter grading.

**C161. Introduction to Pattern Recognition and Machine Learning (4)** Lecture, three hours. Requisites: course 100B, Mathematics 33A. Introduction to pattern analysis and machine intelligence designed for advanced undergraduate and graduate students. Concurrently scheduled with course C261. P/NP or letter grading.

**C163. Generative Data Science (4)** Lecture, three hours; discussion, one hour. Enforced requisite: one course from course C161, Computer Science M146, Electrical and Computer Engineering M146, C147, or Mathematics 156. Designed for students interested in generative data science, an emerging field in

the intersection of generative artificial intelligence (AI), data science, and machine learning. Introduction to core concepts of generative data science, covering generation, evaluation, and utilization of generative data such as image, text, conversation, and tables. Focus on the evaluation of privacy-preserving effect of generative data. Concurrently scheduled with course C263. P/NP or letter grading.

**170. Introduction to Time-Series Analysis (4)** Lecture, three hours; discussion, one hour. Requisite: course 100C or 101A, and 100B. Exploration of standard methods in temporal and frequency analysis used in analysis of numerical time-series data. Examples provided throughout, and students implement techniques discussed. P/NP or letter grading.

**171. Introduction to Spatial Statistics (4)** (Same as Geography M186.) Lecture, three hours; laboratory, one hour. Requisite: one course from 10, 12, 13. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

**C173. Applied Geostatistics (4)** Lecture, three hours; discussion, one hour. Requisite: course 100C (may be taken concurrently) or 101B. Geostatistics can be applied to many problems in other disciplines such as hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture and, in general, to every problem where data are observed at geographic locations. Acquisition of knowledge from different areas that can be used to analyze real spatial data problems and to connect geostatistics with geographic information systems (GIS). Concurrently scheduled with course C273. P/NP or letter grading.

**175. Statistics for Spatial Data (4)** Lecture, three hours; discussion, one hour. Statistical theories used in analyzing spatial data. Study of three types of spatial data: geostatistical data, lattice data, and point patterns, with emphasis on applications and analysis of spatial data using open-source statistical software R. P/NP or letter grading.

**C180. Introduction to Bayesian Statistics (4)** Lecture, three hours; discussion, one hour. Enforced requisites: course 100B, Mathematics 32B. Designed for juniors/seniors. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C236. P/NP or letter grading.

**182. Fundamentals of Scientific Writing (2)** Seminar, one hour. Development and perfection of student written communication skills through variety of scientific writing and reading assignments. Objectives and techniques of scientific writing and practice with different forms of professional writing. Analysis of quality of writing, including control, clarity, grammar, and mechanics. P/NP or letter grading.

**C183. Statistical Models in Finance (4)** Lecture, three hours. Requisite: course 100B. Designed for juniors/seniors and graduate students. Statistical techniques in investment theory using real market data. Portfolio management, risk diversification, efficient frontier, single index model, capital asset pricing model (CAPM), beta of a stock, European and American options (Black/Scholes model, binomial model). Concurrently scheduled with course C283. P/NP or letter grading.

**184. Societal Impacts of Data (2)** Lecture, two hours. Requisites: courses 100B or Mathematics 170S, 101A, 101C or Mathematics 156. Consideration of impacts that data collected today have upon individuals and society. Rapid increase in scale and types of data collected has impacted commerce and society in new ways. Consideration of economic, social and ethical, legal and political impacts of data, especially that collected on human behavior. Topics include privacy and data protection, intellectual property and confidentiality, sample selection and algorithms, equality and anti-discrimination. Letter grading.

**186. Careers in Statistics (1)** Seminar, one hour. Discussion of applications of statistics by weekly guest speakers. How statistics is applied to legal questions, economic decisions, arts, environment, and other fields, with some emphasis on career paths in statistics. P/NP grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.



**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Community or Corporate Internships in Statistics (4)** Tutorial, four hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research in Statistics (1 to 4)** Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**200A. Applied Probability (4)** Lecture, three hours; discussion, one hour. Requisite: course 100A or Mathematics 170A. Limited to graduate statistics students. Simulation, renewal theory, martingale, and selected topics from queueing, reliability, speech recognition, computational biology, mathematical finance, epidemiology. S/U or letter grading.

**200B. Theoretical Statistics (4)** Lecture, three hours; discussion, one hour. Sufficiency, exponential families, least squares, maximum likelihood estimation, Bayesian estimation, Fisher information, Cramér/Rao inequality, Stein's estimate, empirical Bayes, shrinkage and penalty, confidence intervals. Likelihood ratio test, p-value, false discovery, nonparametrics, semi-parametrics, model selection, dimension reduction. S/U or letter grading.

**200C. High Dimensional Statistics (4)** Lecture, three hours; discussion, one hour. Survey of modern techniques in analyzing high-dimensional and non-parametric estimation problems. Emphasis on non-asymptotic bounds via concentration inequalities. S/U or letter grading.

**201A. Research Design, Sampling, and Analysis (4)** Lecture, three hours; discussion, one hour. Designed for graduate students. Basic principles, ANOVA block designs, factorial designs, unequal probability sampling, regression estimation, stratified sampling, and cluster sampling. S/U or letter grading.

**201B. Statistical Modeling and Learning (4)** Lecture, three hours; discussion, one hour. Requisites: courses 200A, 201A. Methods of model fitting and parameter estimation, with emphasis on regression and classification techniques, including those from machine learning. Interest in either obtaining suitable conditional expectation function or estimating meaningful parameters of underlying probabilistic model to make inferences or predictions from data. Focus on what is to be done when linear models are not appropriate and may produce misleading estimates. Coverage of classical must know model fitting and parameter estimation techniques such as maximum likelihood fitting of generalized linear models. Exploration of broader regression/classification techniques that have been ubiquitous in machine learning literature, with special attention to regularization and kernelized methods. S/U or letter grading.

**201C. Advanced Modeling and Inference (4)** Lecture, three hours; discussion, one hour. Strongly recommended requisites: courses 200B, 201B. Designed for graduate students. Introduction to advanced topics in statistical modeling and inference, including Bayesian hierarchical models, missing data problems, mixture modeling, additive modeling, hidden Markov models, and Bayesian networks. Coverage of computational methods used and developed for these models and problems, such as EM algorithm, data augmentation, dynamic programming, and belief propagation. S/U or letter grading.

**202A. Statistics Programming (4)** Lecture, three hours; discussion, one hour. Topics include programming environments/languages such as UNIX, UNIX shell, Python, R, and Processing and data technologies/formats such as relational databases/SQL and XML, with emphasis on complex data types, including large collections of textual data, GPS traces, network logs, and various online sources. S/U or letter grading.

tional databases/SQL and XML, with emphasis on complex data types, including large collections of textual data, GPS traces, network logs, and various online sources. S/U or letter grading.

**202B. Matrix Algebra and Optimization (4)** Lecture, three hours; discussion, one hour. Recommended requisite: course 202A. Survey of computational methods that are especially useful for statistical analysis, with implementations in statistical package R. Topics include matrix analysis, multivariate regression, principal component analysis, multivariate analysis, and deterministic optimization methods. S/U or letter grading.

**202C. Monte Carlo Methods for Optimization (4)** Lecture, three hours; discussion, one hour. Requisite: course 202B. Monte Carlo methods and numerical integration. Importance and rejection sampling. Sequential importance sampling. Markov chain Monte Carlo (MCMC) sampling techniques, with emphasis on Gibbs samplers and Metropolis/Hastings. Simulated annealing. Exact sampling with coupling from past. Permutation testing and bootstrap confidence intervals. S/U or letter grading.

**203. Large Sample Theory, Including Resampling (4)** Lecture, three hours. Requisite: course 200B. Asymptotic properties of tests and estimates, consistency and efficiency, likelihood ratio tests, chi-squared tests. S/U or letter grading.

**205. Hierarchical Linear Models (4)** Lecture, three hours. Designed for students in statistics and other disciplines who want to perform data analysis using linear and nonlinear regression and multilevel models. Introduction to and demonstration of wide variety of models to instruct students in how to fit these models using freely available software packages. Topics include regression, poststratification, matching, regression discontinuity, and instrumental variables, as well as multilevel logistic regression and missing-data imputation. Practical tips regarding building, fitting, and understanding models provided. S/U or letter grading.

**206. Modern Survey Methods (4)** Lecture, three hours. Requisites: courses 201A, 201B or equivalent. Advancements in modern survey methodology. Examination of traditional approaches and consideration of cutting-edge solutions in fields of research in survey methodology. Development of students' own research. S/U or letter grading.

**207. Statistical Learning with Sparsity (4)** Lecture, three hours. Study of methods that exploit sparsity to help recover underlying signal in data. S/U or letter grading.

**208. Statistical Learning Theory (4)** Lecture, three hours. Introduction to theoretical analysis of machine learning methods, with emphasis on prediction problems. S/U or letter grading.

**210. Computer Intensive Methods (4)** Lecture, three hours. Recommended requisite: course 200B. Recommended preparation: programming skills in R, C/C++&plus;&plus;, MATLAB. Overview of theory and practice of computer-based methods for statistical inference and uncertainty quantification, including bootstrap, resampling, computer simulation, and Monte Carlo sampling. Coverage of nonparametric and parametric bootstrap, bootstrap inference, permutation test, cross-validation, likelihood approximation, importance sampling, and Markov chain Monte Carlo with brief introduction to Bayesian inference and missing data problems. S/U or letter grading.

**211. Topics in Economics and Machine Learning (4)** Lecture, three hours. Requisites: courses 200B, 201B, or equivalent. Modern developments in information technology lead to deeper engagement between technology and human that involve data, inferences, and decisions between multiple self-interested participants. Theme of blending economics, information theory, and mathematical statistics began to emerge several decades ago with its roots in work of John von Neumann, Jerzy Neyman, Alan Turing, and David Blackwell. New trend in real-world problems solving in industry and science in recent years leads to new interest and progress in this area. Covers machine-learning, game-theoretic, and economic concepts that are relevant across many application domains and on case studies that demonstrate how to apply these concepts and techniques to real-world problems. Topics include two-sided markets (college admissions, dating markets, etc.), auctions (online advertising, spectrum, etc.), social choice, crowdsourcing, reputation systems, equilibrium computation, mean-field game, and mean-field control. Letter grading.

**212. Graphical Models (4)** Lecture, three hours. Recommended requisite: course 200A. Introduction to graphical models with applications in statistical modeling, machine learning, and causal inference. Common graphical models, such as undirected graphs, directed acyclic graphs, and ancestral graphs, for modeling conditional independence and causality. Methods and theory for structure learning of graphical models from observational and experimental data. S/U or letter grading.

**213. Synthetic Data Generation (4)** Lecture, three hours; discussion, one hour. Requisite: one course from course 200B, 201B, 202A, M231A, 231B. Introduction of data-centric approach, i.e., synthetic data generation, to build trustworthy artificial intelligence systems. In general, well-designed generation process of synthetic data can remove individual information (e.g., preserved data privacy), inject knowledge (e.g., guaranteed robustness), or increase diversity (e.g., enhanced fairness) based on raw data sets. Study includes tutorial on modern generative modeling approaches for synthetic data: generative-adversarial-network-based methods, diffusion process-based methods, and generative-flow-network-based methods. Examination of several use cases of synthetic data in various industries including financial service, e-commerce, and health care. S/U or letter grading.

**C216. Social Statistics (4)** Lecture, three hours. Preparation: some knowledge of basic calculus and linear algebra. Requisites: courses 100A and 100B, or 101B and 101C, or one course from 10, 11, 12, 13 and one upper-division statistics course using regression. Designed for social sciences graduate students and advanced undergraduate students seeking training in data issues and methods employed in social sciences. Concurrently scheduled with course C116. S/U or letter grading.

**218. Statistical Analysis of Networks (4)** Lecture, three hours. Limited to graduate students. Introduction to analysis of social structure, conceived in terms of social relationships. Major concepts of social network theory and mathematical representation of social concepts such as role and position. Use of graphical representations of network information. S/U or letter grading.

**221. Time-Series Analysis (4)** Lecture, four hours. Recommended: some experience in statistical computing. Exploration of methods used in analysis of numerical time-series data. Topics include temporal and frequency analysis, wavelets, and chaos. Implementation of discussed techniques using real data sets. Letter grading.

**222. Spatial Statistics (4)** (Same as Geography M205 and Urban Planning M215.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

**C225. Experimental Design (4)** Lecture, three hours. Basic principles, analysis of variance, randomized block designs, Latin squares, balanced incomplete block designs, factorial designs, fractional factorial designs, minimum aberration designs, robust parameter designs. Concurrently scheduled with course C151. S/U or letter grading.

**230. Statistical Computing (4)** (Same as Biomathematics M280 and Biostatistics M280.) Lecture, three hours. Requisites: course 100C, Mathematics 115A. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

**231A. Pattern Recognition and Machine Learning (4)** (Same as Computer Science M276A.) Lecture, three hours; discussion, one hour. Designed for graduate students. Fundamental concepts, theories, and algorithms for pattern recognition and machine learning that are used in computer vision, image processing, speech recognition, data mining, statistics, and computational biology. Topics include Bayesian decision theory, parametric and nonparametric learning, clustering, complexity (VC-dimension, MDL, AIC), PCA/ICA/TCA, MDS, SVM, boosting. S/U or letter grading.

**231B. Methods of Machine Learning (4)** Lecture, three hours; discussion, one hour. Recommended requisites: courses 208, M231A. Introduction of mathematical tools for analysis of learning with neural networks and graphical models with latent variables. S/U or letter grading.

**231C. Theories of Machine Learning (4)** Lecture, three hours. Requisites: courses 200A, 231B. Introduction to many useful nonparametric techniques such as nonparametric density estimation, nonparametric regression, and high-dimensional statistical modeling. Some semiparametric techniques and functional data analysis. Letter grading.

**232A. Statistical Modeling and Learning in Vision and Cognition (4)** (Same as Computer Science M266A.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Computer vision and pattern recognition. Study of four types of statistical models for modeling visual patterns: descriptive, causal Markov, generative (hidden Markov), and discriminative. Comparison of principles and algorithms for these models; presentation of unifying picture. Introduction of minimax entropy and EM-type and stochastic algorithms for learning. S/U or letter grading.

**232B. Statistical Computing and Inference in Vision and Cognition (4)** (Same as Computer Science M266B.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Introduction to broad range of algorithms for statistical inference and learning that could be used in vision, pattern recognition, speech, bioinformatics, data mining. Topics in-

clude Markov chain Monte Carlo computing, sequential Monte Carlo methods, belief propagation, partial differential equations. S/U or letter grading.

**232C. Cognitive Artificial Intelligence (4)** (Formerly numbered 232C.) (Same as Communication M232C.) Lecture, three hours. Recommended requisites: courses M232A, M232B. Demonstration of how to build artificial intelligence by following principles of human intelligence revealed by cognitive science, including learning from small data, expressing causality of physical world, and inferring mental states of others for intuitive social interactions. Draws from statistical modeling, cognitive science, artificial intelligence, computer vision, and robotics. S/U or letter grading.

**235. Modern Environmental Statistics (4)** (Same as Environment M235.) Seminar, three hours. Limited to graduate students. Requisites: undergraduate level calculus, linear algebra, and introductory statistics; scientific computing. Introduction to statistical approaches in environmental science, with focus on climate science. Topics include Bayesian modeling, hypothesis testing, regression, causality, multidimensional data analysis, time series modeling, and extreme value analysis. Draws upon relevant examples in scientific literature. S/U or letter grading.

**C236. Introduction to Bayesian Statistics (4)** Lecture, three hours; discussion, one hour. Recommended requisite: course 200A or 200B. Designed for graduate students. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C180. S/U or letter grading.

**238. Vision as Bayesian Inference (4)** Lecture, three hours. Requisite: course 100A or 200A. Formulation of vision as Bayesian inference using models developed for designing artificial vision systems. Applied to statistics, they define ideal observer models that can be used to model human performance and serve a benchmark. S/U or letter grading.

**240. Multivariate Analysis (4)** Lecture, three hours. Requisite: course 200B. Distributions in several dimensions, partial and multiple correlation. Normal distribution theory, Wishart distribution, Hotelling T<sup>2</sup>. Principal components, canonical correlation, discriminant analysis. Introduction to linear structural relations and factor analysis. Letter grading.

**241. Current Topics in Causal Modeling, Inference, and Reasoning (4)** (Same as Computer Science M262C.) Lecture, four hours. Requisite: one graduate probability or statistics course such as course 200B, 202B, or Computer Science 262A. Review of Bayesian networks, causal Bayesian networks, and structural equations. Learning causal structures from data. Identifying causal effects. Covariate selection and instrumental variables in linear and nonparametric models. Simpson paradox and confounding control. Logic and algorithmization of counterfactuals. Probabilities of counterfactuals. Direct and indirect effects. Probabilities of causation. Identifying causes of events. Letter grading.

**242. Multivariate Analysis with Latent Variables (4)** (Same as Political Science M208D and Psychology M257.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factor analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

**243. Logic, Causation, and Probability (4)** (Same as Epidemiology M204.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: Epidemiology 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading.

**244. Statistical Analysis with Latent Variables (4)** (Same as Education M231E.) Lecture, three hours. Requisites: Education 231A, M231B. Introduction to general latent variable modeling framework. Important special cases of this framework include confirmatory factor analysis, structural equation models, item response models, latent class models, and multilevel models, among others. Topics include discussions of general statistical and computational framework, model formulation, identification, estimation, and testing. Letter grading.

**C245. History and Theory of Statistics (4)** Lecture, three hours. History of statistical methodology and its role within scientific community. Philosophical tenets of statistics; use of concept of probability as transparent and relatively objective means of evaluating empirical observations. Theory of statistical hypothesis generation and hypothesis testing. Designed to provide under-

standing and perspectives on role of statistics in modern science, theory of statistics, and its strengths and weaknesses. Concurrently scheduled with course C145. S/U or letter grading.

**246. Statistical Model Selection (4)** Lecture, three hours. Preparation: basic knowledge of calculus, linear algebra, and computer programming. Modern methods for constructing and evaluating statistical models, including non-Bayesian and Bayesian statistical modeling approaches. Discussion of theoretical parts and data analysis. Letter grading.

**CM248. Applied Sampling (4)** (Same as Epidemiology M216.) Lecture, three hours; discussion, one hour. Designed for upper-division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. Concurrently scheduled with course C155. S/U or letter grading.

**250. Statistical Methods for Epidemiology (4)** (Same as Epidemiology M211.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Enforced requisites: Epidemiology 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

**254. Statistical Methods in Computational Biology (4)** (Same as Bioinformatics M223 and Biomathematics M271.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course 100A or 200A or Bioinformatics M221. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

**256. Causality (4)** Lecture, three hours; discussion, one hour. Preparation: proficiency in basic R coding, probability theory, linear algebra, multivariate calculus, and statistics through inference and regression. Tools to pursue both theoretical and applied research in causality. S/U or letter grading.

**C261. Introduction to Pattern Recognition and Machine Learning (4)** Lecture, three hours. Requisites: course 100B, Mathematics 33A. Introduction to pattern analysis and machine intelligence designed for advanced undergraduate and graduate students. Concurrently scheduled with course C161. S/U or letter grading.

**C263. Generative Data Science (4)** Lecture, three hours; discussion, one hour. Enforced requisite: course 200B, 201B, 202A, M231A, or 231B. Designed for students interested in generative data science, an emerging field in the intersection of generative artificial intelligence (AI), data science, and machine learning. Introduction to core concepts of generative data science, covering generation, evaluation, and utilization of generative data such as image, text, conversation, and tables. Focus on the evaluation of privacy-preserving effect of generative data. Concurrently scheduled with course C163. S/U or letter grading.

**271. Probabilistic Models of Visual Cortex (4)** Seminar, three hours. Requisite: course 100B or Mathematics 33A. Recommended: Computer Science 180. Introduction to state-of-art computational models of mammalian visual cortex, with topics in low-, mid-, and high-level vision. Discussion of relevant evidence from anatomy, electrophysiology, imaging (e.g., fMRI), and psychophysics. Concentration on mathematical modeling of these phenomena, taking into account recent progress in probabilistic models of computer vision and developments in machine learning. S/U or letter grading.

**C273. Applied Geostatistics (4)** Lecture, three hours; discussion, one hour. Geostatistics can be applied to many problems in other disciplines such as hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture and, in general, to every problem where data are observed at geographic locations. Acquisition of knowledge from different areas that can be used to analyze real spatial data problems and to connect geostatistics with geographic information systems (GIS). Concurrently scheduled with course C173. S/U or letter grading.

**C283. Statistical Models in Finance (4)** Lecture, three hours. Recommended requisite: course 100B. Designed for graduate students. Statistical techniques in investment theory using real market data. Portfolio management, risk diversification, efficient frontier, single index model, capital asset pricing model (CAPM), beta of a stock, European and American options (Black/Scholes model, binomial model). Concurrently scheduled with course C183. S/U or letter grading.

**285. Seminar: Research Topics in Statistics. (2 to 4)** Seminar, one to three hours. Topics in various statistical areas by means of lectures and informal conferences with staff members. May be repeated for credit. S/U grading.

**286. Seminar: Statistical Problem Solving for Population Biology (2)** (Same as Ecology and Evolutionary Biology M286.) Seminar, two hours. Designed for graduate students. Statistical solutions to complex data analysis and/or experimental design problems encountered by biology graduate students in their own research. S/U or letter grading.

**287. Seminar: Gene Expression and Systems Biology (2)** Seminar, two hours. Designed for graduate students (open to undergraduate students with consent of instructor). With high-throughput technologies such as genomic sequencing, microarray gene expressions, Chromatin-ImmunoPrecipitation DNA chip (ChIP-chip), and mass spectrometry (MS/MS) proteomics, scientists are collecting genetic, genomic, and pathway data at rates far beyond imagination one decade ago. Such gigantic volumes of data produced cannot be analyzed and understood without highly sophisticated computational methods guided by mathematical and statistical principles. Cutting-edge genomics research from statistical data analytic point of view. S/U or letter grading.

**290. Current Literature in Statistics (2)** Seminar, one hour. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U grading.

**291XP. Service Learning for Graduate Statistical Consulting (4)** (Formerly numbered 291SL.) Research group meeting, two hours; fieldwork, two hours. Exposure to realistic statistical and scientific problems that appear in typical interactions between statisticians and researchers, with lectures centered on case studies presented by faculty members and invited speakers from business and academic fields. Applied regression analysis and design of experiments, together with basic statistical programs. Presentations and written reports required. S/U or letter grading.

**292. Graduate Student Statistical Packages Seminar (1 to 2)** Seminar, two hours. Introduction to various statistical packages. How to handle data in different packages (input, output, data management, treatment of missing data), general syntax of different programming languages, and good practice for writing own statistical functions. S/U grading.

**294. Scientific Writing (2)** Seminar, two hours. Development of oral and written presentations of statistical data. Objectives and techniques of scientific writing and practice with different forms of professional writing. Participation in oral presentations of student work. S/U or letter grading.

**296. Participating Seminar: Statistics. (1 to 2)** Seminar and discussion by staff and students. S/U grading.

**297SL. Service Learning and Community Learning for Statistics (2 to 4)** Seminar, three hours; fieldwork, 10 hours. To further knowledge by applying what students have learned in class to an actual service work setting under guidance of faculty mentor. Interaction with nonprofit organizations can be either on location or over the Internet. May be used for MS thesis; research paper/project required. S/U or letter grading.

**400. Introduction to Probability Modeling (4)** Lecture, three hours; discussion, one hour. Preparation: calculus and linear algebra. Limited to Master of Applied Statistics students. Introduction to probability theory, probability models, and stochastic processes, with emphasis on concepts, intuitions, calculations, and real applications. Letter grading.

**401. Survey of Methods in Modern Statistics (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Overview of fundamental concepts of data analysis and statistical inference and how these are applied in wide variety of settings. Arc of statistical investigation, including data collection, data exploration, formal inference, and model checking. Letter grading.

**402. Applied Regression (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Introduction to state-of-art applications of linear model for understanding systems and predicting outcomes. Topics include review of statistical inference, properties of least-squares estimates, interpreting linear model, prediction and confidence intervals, model building, diagnostics, and bootstrapping. Letter grading.

**403. Mathematical Statistics (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Basic concepts of mathematical statistics and their applications. Mathematics used to prove various statistical theories, with emphasis on real-world applications. Estimation and statistical inference. Random variables and their distributions; random vectors, their means, variances, variance covariance matrix; and important limit theorems such as central limit theorem. Letter grading.

**404. Statistical Computing and Programming (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Fundamentals of statistical programming using R, C, and C++. R is currently state-of-art

for statistical computing, simulation, statistical graphics, and analysis of data. C and C++; perform computations much faster, and added speed is necessary for analysis of large datasets and for high-level computations, particularly those involving loops and object-oriented programming. Performance of simulations and analysis of real datasets using C, C++, and R. Fundamental principles and techniques for programming in these languages. How to use and interpret results of important functions in R packages. Statistical applications involve linear and nonlinear regression, shrinkage methods, density estimation, numerical optimization, maximum likelihood estimation, classification, and resampling. Graphics and real examples used to illustrate techniques. Analyses of both real and simulated data. Letter grading.

**405. Data Management (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Basic principles of data management, including reading and writing various forms of data, working with databases, data cleaning, validation, transformation, exploratory data analysis, and introductory data visualization and data mining techniques. Exploration of related issues of data security, ethics, and scalability. Introduction to and use of variety of software and languages, such as Python, SQL, Stata, SAS, R. Letter grading.

**411. Multivariate Statistical Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 20, and 101A, or equivalent level of discipline. Limited to Master of Applied Statistics students. Offers students working knowledge of basic concepts underlying most important multivariate techniques, with overview of actual applications in various fields, and with experience in using such techniques on problem of their own choosing. Addresses underlying mathematics and problems of applications. Reasonable level of competence in both statistics and mathematics is required. Letter grading.

**412. Advanced Regression and Predictive Modeling (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Often we are interested in making inferences and predictions from data, either by (1) estimating particular meaningful parameters of models or (2) finding best fitting model that we can then manipulate to produce useful outputs such as predictions or counterfactual estimates. Focus on what is done when linear models are not appropriate and may produce misleading estimates. Generalized linear model and maximum likelihood methods as essential tools all statistics students should understand. Examination of shift gears to explore regression and classification techniques that have been ubiquitous in machine learning literature in recent years, with special attention to regularization and kernelized methods. Letter grading.

**413. Machine Learning (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Recommended preparation: linear algebra, calculus, basic computer programming knowledge. Introduction to machine learning and data mining methods. To gain in-depth understanding of these methods, implementation of them in R, Python, and C++. Letter grading.

**414. Computer Intensive Methods (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Overview of theory and practice of expectation maximization (EM) optimization methods, bootstrap, Monte Carlo simulation, and Markov chain Monte Carlo. Coverage of missing data, EM algorithm and its variants, nonparametric and parametric bootstrap, bootstrap inference, permutation tests, rejection sampling, importance sampling, Metropolis/Hastings algorithm, and Gibbs sampling, with brief introduction to Bayesian computing. Letter grading.

**415. Introduction to Forecasting (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Designed for physical and social sciences students who are interested in using statistics and its applications for forecasting and data-driven decisions and for life sciences and medical school students who are interested in modeling of historical data to predict outcomes. Introduction to state-of-art statistical methods that rely on historical data collected in past to forecast future outcomes. Coverage of models used for forecasting only one measurement type and models used to forecast several types of measurements simultaneously. S/U or letter grading.

**416. Applied Geostatistics (4)** Lecture, three hours; discussion, one hour. Requisites: courses 401, 402, 403. Limited to Master of Applied Statistics students. Introduction to fundamentals of analysis of types of spatial and spatial-temporal datasets frequently arising in geostatistical problems. Geostatistical data arise commonly in nearly every science, wherever spatial and spatial-temporal data are obtained. Examples include geology, hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture. Theory and modern methods for analyzing both lattice and point process data using R, and student performances of their own analysis of geostatistical datasets involving variogram modeling, kriging, model fitting, and estimation using maximum likelihood and nonparametric methods. Letter grading.

**417. Models in Finance (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Exposure to several statistical techniques used in investment theory, and hands-on experience by applying various models on real stock market data using package stockPortfolio of open source statistical software R. Letter grading.

**418. Tools in Data Science (4)** Lecture, three hours; discussion, one hour. Requisites: courses 404, 405. Limited to Master of Applied Statistics students. Tools for data acquisition, transformation and analysis, data visualization, and machine learning and tools for reproducible data analysis, collaboration, and model deployment used by data scientists in practice. Advanced R packages, analytical databases, high-performance machine learning libraries, big data tools. Letter grading.

**419. Experimental Design (4)** Lecture, three hours; discussion, one hour. Requisites: courses 402, 403. Limited to Master of Applied Statistics students. Fundamentals of designing experiments to gain maximal information while minimizing costs. Topics include role of randomization and blocking, comparing two or more treatments, randomized blocks, factorial design, Latin square designs, fractional factorial designs, response surface designs. Letter grading.

**420. Causal Inference in Social Science Practice (4)** Lecture, three hours; discussion, one hour. Requisite: course 400. Recommended requisites: courses 401, 402, 403, 404, 405. Limited to Master of Applied Statistics students. Variety of designs and methods, including experiments, matching, regression, panel methods, difference-in-differences, synthetic control methods, instrumental variable estimation, regression discontinuity designs, and sensitivity analysis. Basic skills from probability and statistics. Applications drawn from various fields including political science, public policy, economics, and sociology. Skills developed apply to any discipline in which investigators seeks to make causal statements but cannot fully randomize treatment. Letter grading.

**421. Advanced Statistical Communication (4)** (Formerly numbered 421B.) Lecture, three hours; discussion, one hour. Designed to improve verbal and written communication skills related to various ways in which statistics is used in workplace. Directed toward students who are fluent in English and are already proficient in verbal and written communication of scientific results. Letter grading.

**422. Data Visualization (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 20, 101A, or equivalent level of discipline. Limited to Master of Applied Statistics students. Study of fundamental methods in data visualization, focusing especially on methods using Tableau, R/shiny, Python/Dash and HTML, and JavaScript for customized R and Python dashboards. Reasonable level of competence in both statistics and computing is required. Letter grading.

**423. Longitudinal Data Analysis (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 20, 101A, or equivalent level of discipline. Limited to Master of Applied Statistics students. Fundamental methods in longitudinal data analysis, with examples of actual applications in various disciplines. Students gain experience in using such techniques on problems of choice. Reasonable level of competence in both statistics and mathematics required. Letter grading.

**424. Teamwork and Leadership in Data Science (4)** Lecture, three hours; discussion, one hour. Requisites: courses 10, 20, 101A, or equivalent level of discipline. Limited to Master of Applied Statistics students. Students learn how to lead, manage, negotiate, and participate in teams of data scientists. Students present statistical results for audiences ranging from business leaders to media outlets to academic statisticians. Letter grading.

**425. Text Mining (4)** Lecture, three hours; discussion, one hour. Limited to Master of Applied Statistics students. Covers use of text mining tools for purpose of data analysis. Covers basic text handling, natural language engineering, and statistical modeling on top of textual data. Letter grading.

**495A. Teaching College Statistics (2)** Seminar, two hours; intensive training at beginning of Fall Quarter. Required of all potential departmental teaching assistants and new PhD students. Practical and theoretical issues in teaching of statistics. S/U grading.

**495B. Teaching College Statistics (2)** Seminar, two hours. Weekly discussion and intensive training for all first-year teaching assistants that addresses practical and theoretical issues in using technology to teach statistics, including use of statistical software as education tool. S/U grading.

**496. Statistics Internship (2 to 4)** Tutorial, four hours; field work, two hours. Under faculty supervision, production of substantial paper relating to or arising from internship. S/U or letter grading.

**497. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member. May be repeated for credit. Letter grading.

**498. MAS Thesis Research (2 to 8)** Tutorial, four hours. Research on thesis project for MAS students. Project should be original analysis of data that solves pressing problem and is done typically in conjunction with an industry partner. May be repeated for credit with permission from program chair or instructor. S/U grading.

**596. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member. May be repeated for credit. Letter grading.

**598. MS Thesis Research (2 to 12)** Tutorial, to be arranged. Designed for second-year statistics MS students. Study and research for MS thesis. May be repeated for credit. S/U grading.

**599. PhD Dissertation Research (2 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Study and research for PhD dissertation. May be repeated for credit. S/U grading.

# Surgery

## Surgery Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced prerequisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced prerequisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**199. Directed Research in Surgery (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Theater

## Theater Courses

### Lower Division

**1A. Introduction to Dance for Music Theater (1)** Studio, four hours. Designed for Theater majors. Introduction to basic music theater dance technique. May be repeated once for credit. Letter grading.

**1B. Introduction to Dance for Music Theater (1)** Studio, four hours. Designed for Theater majors. Introduction to basic music theater dance technique. May be repeated once for credit. Letter grading.

**1C. Introduction to Dance for Music Theater (1)** Studio, four hours. Designed for Theater majors. Introduction to basic music theater dance technique. May be repeated once for credit. Letter grading.

**2A. Tai Chi (1)** Studio, two to four hours. Emphasizes proper form, etiquette as coextensive with training, and other values that sustain physical practice over lifetime. Actors increase focus, enhance discipline, cultivate internal energy, and relax mind and body. Demonstration of how each tai chi movement works in self-defense situation. Letter grading.

**2B. Tai Chi II (1)** Studio, two to four hours. Prerequisite: course 2A. Designed for Theater majors. Reviews, refines, and advances work of course 2A, introducing new forms, and delving more deeply into practice of Yang-style tai chi. Courses in performance practice continuum emphasize proper form, etiquette, and other values that sustain practice over lifetime. May be repeated once for credit. Letter grading.

**3. Aikido (1)** Studio, two to four hours. Designed for Theater majors. Introduction to basic stance, falls, throws, and pins of 20th-century martial art, Aikido. Courses in performance practice continuum emphasize proper form and etiquette. May be repeated twice for credit. Letter grading.

**10. Introduction to Theater (5)** Lecture, three hours; discussion, one hour (when scheduled). Exploration of theater in production, with emphasis on collaborative role of theater artists and active role of audience. Understanding of and access to live theatrical event and enhanced appreciation of value of theater to society; development of critical skills through consideration of representative examples of theatrical production from Europe, America, Asia, and Africa. P/NP or Letter grading.

**11. Approaches to Interpretation of Theater and Performance: Global Perspective (5)** Seminar, four hours. Introduction to basic methods of interpretation in theater and performance throughout world. Topics illustrated by faculty members and guest speakers, visits to off-campus theaters, and reading from contemporary plays. Letter grading.

**12. Introduction to Performance (4)** Lecture, two hours; studio, four hours. Investigation of phenomenon of performance and role of performer in theatrical events, including interpretation of drama through performance. Examination of various forms of theatrical performance and styles of expression, and development of acting, voice, and movement skills. Letter grading.

**13. Play Reading and Analysis (5)** Lecture, three hours. Provides base for subsequent study in theater. Development of techniques of play reading and habits of scholarship useful to further study in each of theater's subdisciplines, including acting, directing, design, playwriting, and critical study. Letter grading.

**14A. Introduction to Design (5)** Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Letter grading.

**14B. Introduction to Design (5)** Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Letter grading.

**14C. Introduction to Design (5)** Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Letter grading.

**15. Introduction to Directing (4)** Lecture, two hours; studio, four hours. Investigation of role of director in theatrical production and theories of play direction, with emphasis on analysis and interpretation of dramatic work and its realization in production. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Acting Fundamentals (4)** Studio, four hours. Introduction to interpretation of drama through art of actor. Development of individual insights, skills, and disciplines in presentation of dramatic material to audiences. P/NP or letter grading.

**21. Acting for Camera (2 to 4)** Lecture, three hours. Development and practice in acting techniques. Preparation and taping of scenes for analysis. May be repeated twice for credit. Letter grading.

**23A. Introduction to Musical Literacy for Singing Actors (2)** (Formerly numbered 23.) Studio, three hours. Reading and translating musical notation in treble clef; defining common musical terminologies; basic rhythm-reading and diatonic sight-singing in all major keys. Letter grading.

**23B. Advanced Musical Literacy for Singing Actors (1)** Studio, three hours. Prerequisite: course 23A. More advanced sight-singing, incorporating minor keys, chromatic scales, internal key changes, and bass clef; exploration of song form, musical theater score formats, and harmonic/contrapuntal singing. Letter grading.

**24. Acting Foundations: Voice (4)** (Formerly numbered 24A.) Studio/lecture/discussion, six hours. Study of basic vocal technique for actor, with emphasis on resonance, range, and power. Physiological foundations for subsequent training and theoretical foundations to enlarge the actor's sense of a vocal practice. Letter grading.

**24C. Voice and Speech I (1)** Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

**25. Acting Foundations: Movement (4)** Studio/lecture/discussion, six hours. Broad investigation of movement in performance, with emphasis on ensemble performance and the actor's craft. Physiological foundations for subsequent training and theoretical foundations to enlarge the actor's sense of a physical practice. Letter grading.

**26. Alexander Techniques (2)** Studio, three hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. P/NP or letter grading.

**27. From Vaudeville to Standup Comedy (4)** Studio, three to four hours. Exploration of many aspects of comedy using American vaudeville traditions, acts, and performers as historical base to experience importance of rhythm, timing, delivery, speech, and body language in all styles of comedy, to find value of improvisation/imagination as well as innovative writing skills in all comic forms, to discover how comedy draws from so many art forms, including music/songs, dance, storytelling, clowning, magic, design, and tumbling/stunts, and to build overall confidence/ease in comic performance skills. P/NP or letter grading.

**28A. Acting, Voice, and Movement Workshop I (2)** Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**28B. Acting, Voice, and Movement Workshop I (2)** Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**28C. Acting, Voice, and Movement Workshop I (2)** Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**28D. Acting, Voice, and Movement Workshop I (2)** Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**28E. Acting, Voice, and Movement Workshop I (2)** Studio, six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**28F. Acting, Voice, and Movement Workshop I (2)** Studio, six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**30. Dramatic Writing (4)** Studio, three hours. Intended for Theater minors and other nonmajors. Exploration and development of creative writing skills for one or more of various forms of entertainment media. May be repeated once. Letter grading.

**34A. Ballet II (1)** Studio, five hours. Development of dance and movement techniques for musical theater. Letter grading.

**34B. Ballet II (1)** Studio, five hours. Development of dance and movement techniques for musical theater. Letter grading.

**34C. Ballet II (1)** Studio, five hours. Development of dance and movement techniques for musical theater. Letter grading.

**35A. Group Singing Techniques (1)** Studio, three hours. Requisites: courses 23A, 23B. Introduction to singing techniques, with emphasis on bel canto training. Exploration of how singing voice works and how to achieve optimal vocal sound and musicality while preserving vocal health. Letter grading.

**35B. Advanced Group Singing Techniques (1)** Studio, three hours. Requisite: course 35A. Advanced singing techniques, focusing on strategies for producing consistently dynamic, efficient, and musical vocal sound, and how to build stamina and range while preserving vocal health. Letter grading.

**50. Theater Production. (1 to 2)** Laboratory, three to six hours. Laboratory experience in various aspects of theater production, including stage management or member of production crew. May be repeated for maximum of 8 units. Letter grading.

**72. Production Practice in Theater, Film, Video, and Digital Media(1 to 8)** Studio, three hours. Exploration and laboratory experience in one or more of various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be taken for maximum of 8 units. Letter grading.

**76. Introduction to Production Practice in Theater with Emerging Technologies (4)** Studio and laboratory, four to six hours. Introductory studio with focus on collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, often culminating in rehearsal and/to public presentation. Letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**95. Introduction to Community or Corporate Internships in Theater, Film, and Television (2 to 4)** Tutorial, six to 12 hours. Limited to freshmen/sophomores. Internship at various theaters, studios, or entertainment organizations accentuating creative contributions, organization, and work of professionals in various specialties. Students meet on regular basis with faculty member and provide periodic reports of experience. May be taken for maximum of 4 units. Individual contract with supervising faculty member required. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101A. Global Histories of Theater and Performance I (5)** Lecture, three hours; discussion, one hour. Introduction to histories of theater and performance from across world, with emphasis on ancient world through 18th century. Introduction to global aesthetic theories and historiographical research methods. Letter grading.

**101B. Global Histories of Theater and Performance II (5)** Lecture, three hours; discussion, one hour. Introduction to histories and historiographies of theater and performance from across world, with emphasis from 18th century through 21st century. Introduction to representational modalities from melodrama to performance art and theoretical approaches from Marxism to post-structuralism. Letter grading.

**102A. Theater of Japan (5)** Lecture, three hours. Overview of Japanese theater and performance from early theatrical activity to present, with emphases on enduring forms and genres, patterns of reception, and transnational influences. Letter grading.

**102B. K-Pop: Race, Gender, and Sexuality in Globalizing Asian Media (5)** Lecture, two hours; discussion, two hours. Exploration of K-pop through critical lens of gender queerness, racial plagiarism and passing, cultural appropriation, affective labor, body technology, transmedia, and globality. Study acknowledges that history of globalization and evolution of media ecosystem cannot be studied without considering uneven power dynamics marked by racial and gender hierarchy and digital accessibility. Letter grading.

**102C. Cross-Cultural Currents in Theater (4)** Lecture, three hours. Exploration of interculturalism in theater, with focus on 20th-century alternatives to naturalism. Analysis of historical materials and dramatic texts to investigate cultural, aesthetic, ethical, and social implications of borrowing from other cultures. Letter grading.

**102D. Trans Theater and Performance (5)** Lecture, three hours. Consideration of what it means to construct a history of trans theater; how terms trans and theater are defined, and if it is desired to and to what ends; and if there is such a thing as trans (dramatic) form. Historical and literary exploration of theater and performance made by trans, nonbinary, two-spirit, and intersex people in the U.S. Letter grading.

**103A. African American Theater History: Slavery to Mid-1800s (4)** (Same as African American Studies M103A.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from slavery to mid-1800s. Letter grading.

**103B. African American Theater History: Minstrel Stage to Rise of American Musical (4)** (Same as African American Studies M103B.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from minstrel stage to rise of American musical. Letter grading.

**103C. Origins and Evolution of Chicano Theater (5)** (Same as Chicana/o and Central American Studies M103C.) Lecture, three hours. Designed for juniors/seniors. Exploration of development of Chicano theater from its beginning in legends and rituals of ancient Mexico to work of Luis Valdez (late 1960s). P/NP or letter grading.

**103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement (5)** (Same as Chicana/o and Central American Studies M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions that led to emergence of Chicano theater. Letter grading.

**103E. Modern African American Drama: Harlem Renaissance to Black Arts Movement (4)** (Same as African American Studies M103E.) Lecture, three hours. Survey and examination of African American plays from 1920s until birth of modern civil rights era. Examination of sociohistorical context out of which plays were created and critical essays that illustrate development of African American playwrights and their significant involvement in creation of diversified American theatrical tradition. Letter grading.

**103F. Native American Theater (5)** Lecture, three hours. Study of American Indian theater as evolving art form. P/NP or letter grading.

**103G. Contemporary Chicano Theater: Chicano Theater since 1980 (5)** (Same as Chicana/o and Central American Studies M103G.) Lecture, three hours. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art. Letter grading.

**103I. Israel and Palestine: Communities, Conflicts, Cultures, and Arts in Middle East (4)** Lecture, three hours. No background on or prior interest in history or region or arts required. Land variously known by names of Zion, Holy Land, Palestine, and Israel is not just one place. It is a realm of imagination, envisioned and re-envisioned throughout history. It is at once real and surreal, sturdy and fragile, all-enduring and ephemeral. Examination of selected works of literature, performance, visual arts, film, and media by Israeli and Palestinian artists, as well as Western artists with interest in region. Looking beyond headlines and facile cultural clichés for deeper insights arts can offer into cultural conflict and community at large, to emerge with surprising conclusions. Letter grading.

**103J. Contemporary Black Theater: Modern Civil Rights Era to Black Lives Matter and Beyond (4)** (Same as African American Studies M103J.) Lecture, three hours. Examination of Black theater from Black Arts Movement of 1960s until today. Exploration of social and historical implications of work, and aesthetic experimentation of contemporary African American playwrights and movements. Letter grading.

**104D. New Playwrights, New Playwriting (5)** Seminar, three hours. Required for students in playwriting sequence. How to approach diverse range of new plays currently changing landscape of theater. Contemporary look at plays written in last 15 years and how they reflect society. Reading of plays to build skills of manuscript analysis; development of working vocabulary of dramatic concepts; exploration of different styles of acting, directing, and design that playwrights of today draw from. Letter grading.

**C104E. History of Design Décor Part I: Architecture and Décor—Antiquity to Early Neoclassical (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of pre-Renaissance architectural and interior décor as manifestation of cultural, social, economic, and political influences to provide historical



framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C404E. Letter grading.

**C104F. History of Design Décor Part II: Architecture and Décor—Industrial Revolution to 21st Century (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of post-Renaissance architectural and interior décor as manifestation of cultural, social, economic, and political influences to provide historical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C404F. Letter grading.

**C104G. History of Design for Performance Production Part I: Historic Costume from Prehistoric to Neoclassical (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire. May be repeated once for credit. Concurrently scheduled with course C404G. Letter grading.

**C104I. History of Design for Performance Production Part II: Historic Costume from Neoclassical to 21st Century (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire with global emphasis. May be repeated once for credit. Concurrently scheduled with course C404I. Letter grading.

**C104J. History of Design for Performance Production: Selected Topics of Décor and Costume Design History (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Historic survey and in-depth exploration of selected periods and subcategories of décor and costume. Visual representation, with emphasis on influences of global diverse cultures. May be repeated three times for credit. Concurrently scheduled with course C404J. Letter grading.

**105. Main Currents in Theater (5)** Lecture, three hours. Critical examination of leading theories of theater from 1887 to present. Study and discussion of modern styles of production. P/NP or letter grading.

**106. History of American Theater and Drama (5)** Lecture, four hours; discussion, one hour (when scheduled). Survey of key works of American dramatic literature and landmarks of American theater history. P/NP or Letter grading.

**107. Drama of Diversity (5)** Lecture, three hours; discussion, one hour (when scheduled). Investigation of diversity in American society as manifested in dramatic works and theatrical presentations. P/NP or Letter grading.

**108. Undergraduate Seminar: History and Criticism (5)** Seminar, four hours. Limited to 15 students. Selected topics in history and criticism of theater and performance. Study of how experimental theaters originate, how they imagine their form of performance, their audience, and their goals. Concentration on theaters that regarded themselves, in some way, as experimental. Examples primarily from theaters within U.S. from 1960s to present, although examples from other countries, specifically Poland, also considered. Letter grading.

**109. Art and Performance: Interdisciplinary Approach to Collections of Getty Center (4)** (Same as Honors Collegium M120.) Lecture, four hours; discussion, one hour. Drawing from objects in five major collections at Getty Museum, focus on five parallel historical periods in which political, social, and aesthetic philosophy of age is examined in musical and dramatic performance. Letter grading.

**110. History of American Musical Theater (5)** Lecture, three hours; discussion, one hour. Survey of history of American musical: its composers, writers, and performers from musical's emergence in immigrant cultures to Broadway and Off-Broadway. With its roots in British music halls and comic opera, Viennese operetta and African American jazz, American musical theater emerged as vivid and popular art form with its own culture and identity. P/NP or letter grading.

**111. Creating Theatrical Season (5)** Seminar, three hours. Limited to sophomore/junior/senior Theater majors and minors. Students research and analyze contemporary issues facing theater and entertainment industries, and then address them through researching and proposing Theater Department's next annual production calendar. Introduction to process of searching for and vetting new and classic scripts and addressing current trends and issues through concrete planning and programming. Topics and discussions related to current issues vary by term. May be repeated for credit. P/NP or letter grading.

**C112A. Emerging Technologies and Their Uses in Live Performance (4)** (Formerly numbered C112.) Seminar, four hours. Survey of major emerging and contemporary technologies and their potential uses in and impact on live performance, from augmented and virtual reality to electronic textiles, Internet of Things, and Modern approaches to artificial intelligence. Offers solid basis for engaging in future collaborations with technologists, for self-study of new

technologies, and, for those already more familiar with digital technologies, theoretical background for engaging with social context of these technologies. Concurrently scheduled with course C212A. P/NP or letter grading.

**C112B. Artificial Intelligence in Live Performance (4)** Seminar, four hours. Survey of artificial intelligence (AI) technologies and their impacts on live performance. Introduction of large language models, media synthesis, computer vision, and ethical, legal, and policy issues. Exploration of how contemporary AI works, risks and benefits, and its evolving relationship to creative practice. Concurrently scheduled with course C212B. P/NP or letter grading.

**113. Special Topics in Theater and Performance Studies (5)** Lecture, three or four hours. Consult Schedule of Classes for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

**114. Variable Topics in Performance and Disability Studies (4)** (Same as Disability Studies M114.) Seminar, four hours. Analysis and critique of depiction of disability in theater. Topics may include introduction to disability studies; race, gender, and disability; representation of disability in theater; and more. May be repeated for credit with topic or instructor change. P/NP or letter grading.

**115A. Physical Systems of Acting: Foundations (4)** Studio, six hours. Requisites: courses 24A, 24B, 25. Introduction to physical approaches of actor training, with emphasis on development of ensemble skills, physical presence, and capacity to respond in moment to physical, special, textual, and subtextual stimuli. Letter grading.

**115B. Physical Systems of Acting: Practice (4)** Studio, six hours. Requisites: courses 24A, 24B, 25. Performance of original studies in physical theater and/or material from physical theater repertory. Course activities, materials, and discussions based on contemporary physical theater practices. Letter grading.

**116A. Psychological Systems of Acting: Foundations (4)** Studio, six hours. Requisites: courses 24A, 24B, 25. Development of acting skills through sense memory, personalization, action, and objective exercises. Letter grading.

**116B. Psychological Systems of Acting: Practice (4)** Studio, six hours. Requisites: courses 24A, 24B, 25, and 116A, or 28A, 28B, 28C, and 116A. Examination of characterization exercises and their application to contemporary scenes. Letter grading.

**117. Topics in Physical Performance (2)** Studio, three to four hours. Exploration of specific physical performance techniques, drawn from range of practices. Topics may include specific types of partnering, combat, martial arts, vintage dance, etc. May be repeated twice for credit. Letter grading.

**118A. Teaching Artist Fundamentals (4)** Lecture, four hours. Introduction to teaching artist techniques and the creation of storytelling projects through K-12 engaged pedagogy. Exploration of approaches to the interrelationships of arts to traditional learning disciplines by the facilitation of creative activities and lesson plan construction. Letter grading.

**118B. ArtsBridge Ensemble: Theatre for Young Audiences (4)** Lecture, four hours; laboratory, to be arranged. Ensemble creates a theatrical experience for youth audiences. Exploration of physical theater systems and approaches to storytelling reflective of childhood stages of development. Practices culminate in a presentation of the material to Los Angeles Unified School District schools. May be repeated once for credit. Letter grading.

**118C. Applied Theatre: Arts in Action (4)** Laboratory, four hours. Investigation of applied theatre and methods through which the arts are used to address social issues. Emphasis is placed on culturally sustaining practices and communal activities supporting people to speak toward their experiences through the transformative process of theatre-based techniques. Letter grading.

**118D. ArtsBridge Teaching Practicum (4)** Lecture, four hours. Requisite: course 118A. Teaching artist residency in K-12 Los Angeles Unified School District (LAUSD) classrooms. Weekly meetings to develop teaching materials that integrate the performing arts into standard curriculum. The LAUSD placement culminates in a final creative project presented by the host classroom. May be repeated once for credit. Letter grading.

**119A. Puppetry Fundamentals (4)** (Formerly numbered 119.) Lecture, 90 minutes; studio, two and one half hours. Introduction to fundamental techniques used for construction and performance of various styles of puppetry ranging from hand-rod, large and small scale, to shadow play. Emphasis on learning about Los Angeles puppetry community and professional components of the industry and deepening an appreciation of the diversity of global puppetry traditions. Letter grading.

**120A. Acting and Performance in Film (5)** Lecture, six hours. Exploration of acting and performance in film. Through screenings of performance-driven films, class discussion, and acting exercises, examination of methods, styles, and performances of some of world's most highly regarded actors and their work. P/NP or letter grading.

**120B. Acting and Performance in Film (5)** Lecture, six hours. Exploration of acting and performance in film. Through screenings of performance-driven films, class discussion, and acting exercises, examination of methods, styles, and performances of some of world's most highly regarded actors and their work. P/NP or letter grading.

**120C. Acting and Performance in Film (5)** Lecture, six hours. Exploration of acting and performance in film. Through screenings of performance-driven films, class discussion, and acting exercises, examination of methods, styles, and performances of some of world's most highly regarded actors and their work. Letter grading.

**121. Acting Workshop (2)** Studio, to be arranged. Requisite: course 20. Courses 160, 163A, 163B, and 163C may be taken concurrently. Workshop that provides students with opportunity to rehearse, perform, and criticize scenes. May be repeated once for credit. P/NP or letter grading.

**C122. Character Development through Makeup and Hair Design (2)** Studio, four hours. Examination of importance of makeup and hair design in film. History and overview of hair and makeup in fashion and motion pictures. Collaboration of makeup artists and hairstylists with costume designer, actors, production designer, and director to conceptualize people in script. Exploration of makeup artist and hairstylist roles in current film, television, and theater productions and skills needed to design makeup and hair for film and television productions. Concurrently scheduled with course C222. Letter grading.

**123. Intermediate Acting for Stage (4)** Lecture/studio, four hours. Requisite: course 20. Study and practice of art of acting through perfecting of techniques and application of those techniques to acting problems. P/NP or letter grading.

**124A. Intermediate Voice and Speech: Vocal Energy in Classical Text (2)** Studio, three to four hours. Requisites: courses 24A and 24B, or 28A and 28B. Creation of warm-up and building of vocal energy through understanding ideas, thoughts, and beats. Examination of diaphragmatic connection and breath control to work on classical text and verse, including Shakespearean sonnet. Letter grading.

**124B. Intermediate Voice and Speech II: Creating Complete Warm-Up for Theatrical Productions (2)** Studio, three to four hours. Requisites: courses 24A, 24B, and 124A, or 28A, 28B, and 124A. Working with contemporary texts to learn all simple vowels (lip, tongue, open, neutral) and to communicate sound consistently forward and connected through whole body. Creation of complete warm-up for theatrical production using these methods. Letter grading.

**124C. Dialects (2)** Studio, three to four hours. Requisite: course 124B. Development of techniques in approaching dialects in performance. Letter grading.

**124D. Acting for Microphone (1)** Studio, one to three hours. Requisite: course 124B. Introduction to voiceover techniques for television and radio commercials, animation, video games, audio books, Automatic Dialogue Replacement (ADR)/looping, narration, e-learning, and interactive voice response (IVR). Letter grading.

**124E. Voice and Speech III (1)** Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

**124F. Voice and Speech III (1)** Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

**125A. Alexander Technique (2)** Studio, three to four hours. Requisite: course 25 or 28C. Study and practice in Alexander technique as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and use of visual arts and animal studies for character development. Letter grading.

**125B. Physical Awareness and Combat for Theater, Film, and Television (2)** Studio, three to four hours. Requisite: course 25 or 28C. Combat training for actors in theater, film, and television. Concentration on warm-up, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

**125C. Physical Awareness and Combat for Theater, Film, and Television II (2)** Studio, three to four hours. Requisite: course 125B. Combat training for actors in theater, film, and television. Concentration on warm-up, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

**125D. Movement and Combat III (2)** Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

**125E. Movement and Combat III (1)** Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

**125F. Movement and Combat III (2)** Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

**126A. Acting Shakespeare (4)** Studio, six hours. Requisites: courses 24A, 24B, 25, and 116A, or 28A, 28B, 28C, and 116B, all with grades of C or better. Study of characterization, verse, scansion, and rhetoric; personalization within heightened reality. Letter grading.

**126B. Acting Classical Texts (4)** Studio, six hours. Requisite: course 126A. Advanced study of characterization, approach to verse, scansion, use of embodiment in classic texts. Personalization within heightened reality. Letter grading.

**126C. Acting III (4)** Studio, six hours. Study of characterization, including introduction to Shakespeare. Approach to verse, scansion, use of embodiment in classic texts. Personalization within heightened reality. Letter grading.

**127. Performance for Virtual Environments (4)** Lecture, two hours; discussion, one hour; laboratory, two hours. Exploration of performance in virtual environments through hands-on experimentation and scene work using two or more prominent technologies, supported by history of each technology and its use in arts, key technological concepts, and basic production processes. Consideration of uses in large scale professional production as well as low-budget and do-it-yourself approaches. Platforms studied are selected for their importance to field, timeliness, and relationship to department season. Students engage with platforms as actors, working with instructor- and self- and selected scenes. Students explore character development, different relationships to audience and camera, and engagement/synchronization with virtual setting. Students identify techniques collaboratively in concert with study of experiences of other actors, directors, and other creators with platforms. Letter grading.

**128A. Acting, Voice, and Movement Workshop II (2)** Studio, four to six hours. Study of advanced acting technique, scene study, and development of voice and movement skills. May be repeated for maximum of 12 units. Letter grading.

**CM129. Contemporary Topics in Theater, Film, and Television (2)** (Same as Film and Television CM129.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM229. P/NP or letter grading.

**130. Fundamentals of Playwriting (5)** Studio, three hours. Designed for departmental majors and minors. Exploration of writing for live performance. Students develop and workshop short plays. May be repeated once for credit. Letter grading.

**131A. Intermediate Playwriting: Full-Length Play Part I (5)** Studio, three hours. Requisite: course 130A. Introduction to process of conceiving, researching, and developing full-length plays. Students begin drafting full-length plays. May be repeated twice for credit. Letter grading.

**131B. Intermediate Playwriting: Full-Length Play Part II (5)** Studio, three hours. Requisite: course 131A. Continuation of writing of full-length plays begun in course 131A. May be repeated twice for credit. Letter grading.

**131C. Playwriting: Full-Length Play Capstone (5)** Studio, three hours. Requisite: course 131A. Limited to juniors/seniors. Same as course 131B, but taken for capstone credit. Completion of writing of full-length plays begun in course 131A, with rehearsed readings of student capstone plays. Letter grading.

**132. Manuscript Evaluation for Theater (4)** Lecture, three hours. Requisite: course 130A. Principles and practices in evaluation of manuscripts for theater. May be repeated once for credit. P/NP or letter grading.

**C133A. Script Development Workshop. (4 to 8)** Lecture, three hours; studio, four to 24 hours. Guided process of script development, with emphasis on communication, artistic growth, and professional process. May be taken for maximum of 8 units. Concurrently scheduled with course C433A. Letter grading.

**C133C. Script Development Workshop. (4 to 8)** Lecture, three hours; studio, four to 24 hours. Guided process of script development, with emphasis on communication, artistic growth, and professional process. May be taken for maximum of 8 units. Concurrently scheduled with courses C433C. Letter grading.

**134A. Dance for Musical Theater II (1)** Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

**134B. Dance for Musical Theater II (1)** Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

**134C. Dance for Musical Theater II (1)** Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

**134D. Dance for Musical Theater III (1)** Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

**134E. Dance for Musical Theater III (1)** Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

**134F. Dance for Musical Theater III (1)** Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

**134G. Dance for Musical Theater: Ballet (1)** Studio, three to four hours. Designed for Theater majors. Intermediate level course. Development of skills and furthering of concepts of ballet technique. Emphasis on development of proper placement, building strength and flexibility, higher level of techniques, and awareness of musicality and artistic expression. May be repeated five times for credit. Letter grading.

**135A. Musical Theater Vocal Styles: Gospel (2)** Studio, three hours. Designed for Theater majors. Part of five-course series of musical theater performance techniques in which students explore and master variety of vocal styles and/or acting approaches necessary to be competitive in field of professional musical theater. Exploration of strategies and techniques for singing gospel and rhythm and blues music, with solo and group improvisation as foundation. Letter grading.

**135B. Musical Theater: Creating and Playing Subtext on Standard Ballad (2)** Studio, three hours. Designed for Theater majors. Acting (creating personalized subtext) applied to performance of ballad. Letter grading.

**135C. Musical Theater Vocal Styles: Legitimate/Operetta (2)** Studio, three hours. Designed for Theater majors. Part of five-course series of musical theater performance techniques in which students explore and master variety of vocal styles and/or acting approaches necessary to be competitive in field of professional musical theater. Exploration of strategies and techniques for singing legitimate/operetta music, with emphasis on vocal and body strengthening exercises and solo song coaching. Letter grading.

**135D. Musical Theater Vocal Styles: Rock (2)** Studio, three hours. Designed for Theater majors. Part of five-course series of musical theater performance techniques in which students explore and master variety of vocal styles and/or acting approaches necessary to be competitive in field of professional musical theater. Exploration of strategies and techniques for singing rock music, with emphasis on vocal and body strengthening exercises and solo song coaching. Letter grading.

**135E. Musical Theater: Creating and Playing Character from Musical Text (2)** Studio, two to three hours. Designed for Theater majors. Exploration of text and lyrics of musical theater piece, song cycle, or specific composer's work from actors' point of view. Students develop skills in research, character observation, and improvisation. Emphasis on creating and sustaining character through singing. Letter grading.

**135F. Singing: Individual Instruction (1)** Studio, one hour. Requisite: course 35B. Designed to advance proper vocal technique, focusing on breath support, vowel shape, range expression, and overall mastery of vocal instrument. May be repeated four times for credit. Letter grading.

**135G. Musical Theater Duets: Singing in Relationship (2)** Studio, three hours. Designed for Theater majors. Study and practice of musical theater duets with emphasis on establishing, exploring, and maintaining relationship and intention while singing. Development of vocal technique and the ability to hold melody and harmony lines while singing in relationship. Research of duet history using song selections covering history of musical theater from early 20th century through contemporary, incorporating and advancing diversity, equity, and inclusion values while not being restricted to original casting models in practice. Letter grading.

**136. Advanced Acting for Stage (4)** Studio, four hours. Requisite: course 123. Study and practice of art of acting through progression to more advanced acting problems. May be repeated twice for credit. Consecutive enrollment with same instructor not permitted. Total units for courses 136, 137A, 137B, and 137C may not exceed 12 units. Letter grading.

**137. Acting for the Camera (4)** Lecture/studio, four to six hours. Requisite: course 116B. Designed to aid the actor in the transition from stage to film work. Examination of film production and its physical characteristics and the acting style needed for work in film and television. Students may perform in simulated studio setting on camera. May be repeated once for credit with instructor change. Letter grading.

**138. Special Problems in Performance Techniques (4)** Studio, four hours. Study of complex problems in voice, movement, and acting. May be repeated twice for credit. P/NP or letter grading.

**139. Play Reading and Analysis (5)** Lecture, three hours. Investigation of dramatic texts, with focus on play structure, plot, character, dialog, ideas, and various other elements essential to effective theatrical interpretation and realization. Letter grading.

**C141D. Projection Design and Media I (4)** Lecture, two hours; laboratory, two hours. Study and practice of projection and media techniques. Emphasis on analysis, design, and execution of theatrical projection and photographic technique for stage. May be repeated once for credit. Concurrently scheduled with course C441D. Letter grading.

**C141E. Projection Design and Media II (4)** Lecture/laboratory, four hours. Continuation of course C141D. Advanced study and practice in projection and media techniques, with emphasis on analysis, design, and execution of theatrical projection and photographic technique for stage. May be repeated once for credit. Concurrently scheduled with course C441E. Letter grading.

**C146A. Art and Process of Entertainment Design (4)** Lecture, three hours. Conceptualization, design, and prototyping of interactive theatrical events. Exploration of original forms of media-rich entertainment experience through lectures, presentations, and seminar participation. Students form collaborative teams to conceive and propose interactive entertainment events. Concurrently scheduled with course C446A. Letter grading.

**C146B. Art and Process of Entertainment Design (4)** Lecture, three hours. Conceptualization, design, and prototyping of interactive theatrical events. Prototype development; two to five proposals to be more completely defined and developed. Students form collaborative teams for further conceptual development of their project proposals. May be repeated once for credit. Concurrently scheduled with course C446B. Letter grading.

**147A. Drafting (4)** Studio, four hours. Development of visual communication skills through drafting. Exploration of drafting for scenic and lighting designs. May be repeated once for credit. Letter grading.

**148. Special Courses in Design and Technical Theater (4)** Lecture, three hours. Group study of selected subjects in design and technical theater. May be repeated twice for credit. P/NP or letter grading.

**149. Introduction to Design (5)** Lecture, three hours. Exploration of interpretation of drama through design, including study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Investigation of techniques for realization of designs in production. Letter grading.

**150. Theater Production and PerformanceE. (1 to 2)** Laboratory, three to six hours. Laboratory experience in various aspects of theater production, including performance in project or production, stage management, member of crew, or assignment as designer or assistant on production. May be repeated for maximum of 8 units. Letter grading.

**C151A. Scenic Design (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C451A. Letter grading.

**C151B. Scenic Design for Theater (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of scenic design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C451B. Letter grading.

**C151C. Production Design for Film, Television, and Video (4)** Lecture/studio, four hours. Study of role of art director, scenic design for single-camera and multicamera production, and set decoration. May be repeated once for credit. Concurrently scheduled with course C451C. Letter grading.

**C152A. Lighting Design (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to actor. May be repeated once for credit. Concurrently scheduled with course C452A. Letter grading.

**C152B. Lighting Design for Theater (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of lighting design for proscenium, thrust, and arena configurations, music theater, and concert lighting. May be repeated once for credit. Concurrently scheduled with course C452B. Letter grading.

**C152C. Lighting Design for Television (4)** Lecture/studio, four hours. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C452C. Letter grading.

**C152D. Lighting Design for Performances and Special Events (4)** Lecture, four hours. Requisites: courses C152A, C152B, C152C. Advanced topics in lighting design, including live performances for concerts, exhibitions, and live events. Concurrently scheduled with course C452D. Letter grading.

**C152E. Lighting Design For Dance (4)** Lecture, four hours. Requisite: course C152A, C152B, or C152C. Advanced topics in lighting design, concentrating on live dance performance in all styles. Concurrently scheduled with course C452E. Letter grading.

**C153A. Costume Design (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C; for transfer students: course 149. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated twice for credit. Concurrently scheduled with course C453A. Letter grading.

**C153B. Costume Design for Theater (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C; for transfer students: course 149. Study of costume design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated twice for credit. Concurrently scheduled with course C453B. Letter grading.

**C153C. Costume Design for Film and Television (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C; for transfer students: course 149. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. May be repeated twice for credit. Concurrently scheduled with course C453C. Letter grading.

**C153D. Projects in Costume Design Management (4)** Lecture, three hours. Examination of professional duties of costume designers, set costumers, and supervisors, especially management of production logistics, including but not limited to costume breakdowns, creating budgets, adhering to and overseeing them, as well as set costumer training for film and television, practicing on-set protocol, breakdown of daily responsibilities, and assembling set costumer kits ready for production. Practice with professional resourcefulness to move from abstract to substantive problem solving, maintaining creative and collaborative environment while adhering to logistical obstacles and tasks. Concurrently scheduled with course C453D. Letter grading.

**C153E. History of Costume Design in Movies (4)** Lecture, three hours; screenings, two to six hours. History of costume design within context of 20th-century fashion and film history, including evolution of role of costume designer since early days of film industry. Role of costume designer and contribution of costume design to cinematic storytelling. Concurrently scheduled with course C453E. Letter grading.

**C153F. Practice of Costume Design for Film Productions (4)** Lecture, three hours. Introduction to costume design as tool for storytelling, exploring integration of costume design and filmmaking process and what it takes to bring characters to life. Skills needed to effectively costume short narrative films, including script breakdown, collaboration with directors and actors, and how to manage production challenges. Concurrently scheduled with course C453F. Letter grading.

**C154A. Sound Design (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Introduction to sound and audio in acoustic, audio, and digital domain. Study and practice of techniques for recording, editing, and creating soundscapes. May be repeated once for credit. Concurrently scheduled with course C454A. Letter grading.

**C154B. Sound Design for Musicals (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C, C154A. Exploration of sound design for theater and techniques for mixing, reinforcement, and signal processing. Topics include use of delay, equalization, and microphone placement for theater sound reinforcement with focus on mixing musicals. Covers paperwork needed to complete show. Tuning space, equalization, and some advanced projects involving programming and mixing on various consoles. May be repeated once for credit. Concurrently scheduled with course C454B. Letter grading.

**C154C. Sound for Film and Television (4)** Lecture/studio, four hours. Requisites: courses C154A, C154B. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C454C. Letter grading.

**C154D. Script Analysis for Sound Design (4)** (Formerly numbered C144C.) Lecture/studio, four hours. Requisites: courses C154A, C154B. Advanced study and practice in preparation of theater sound design with emphasis on analysis of script and score, conceptual development of design, and techniques to realize design. Concurrently scheduled with course C454D. Letter grading.

**C154F. Field Recording and Content Creation for Sound Designers (4)** Lecture/studio, four hours. Requisites: courses C154A, C154B. Advanced techniques for creating content, focused on field recording and capturing sounds and their application for performance. Concurrently scheduled with course C454F. Letter grading.

**C154G. Music Technology for Sound Design (4)** Lecture/studio, four hours. Requisites: courses C154A, C154B. Overview of music, musical genres, and their structure with goal of understanding music composition. Students use software to create musical ideas and sound design components. Concurrently scheduled with course C454G. Letter grading.

**C155A. Graphic Representation of Design: Perspective Drawing (2)** Studio, four hours. Requisite: course 147A or 147B. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-point perspective, form light, shade, and textures. Concurrently scheduled with course C455A. Letter grading.

**C155B. Graphic Representation of Design: Multimedia Rendering (2)** Studio, four hours. Study and practice of multimedia rendering techniques as they relate to interpretation of scenic, lighting, and costume renderings, with focus on human form in space. Weekly demonstrations of wide variety of art media, including watercolor, markers, pastel, and collage rendering. May be repeated twice for credit. Concurrently scheduled with course C455B. Letter grading.

**C155C. Graphic Representation of Design: Digital Rendering (2)** Studio, four hours. Study and practice in rendering costumes, lighting, and scenic elements with combination of hand and digital rendering techniques. Coverage of rendering from life, enhancing final rendering with variety of computer-assisted formats to create polished sophisticated presentations for theater, film, and television productions. May be repeated twice for credit. Concurrently scheduled with course C455C. Letter grading.

**C155D. Graphic Representation of Design: Model Making (2)** Studio, four hours. Requisite: course 147A or 147B. Study of model for representation of scenic designs from initial working prototypes to finished color models. Use of wide variety of materials and techniques for execution of model. Concurrently scheduled with course C455D. Letter grading.

**C155E. Graphic Representation of Design: Life Drawing (2)** Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. May be repeated twice for credit. Concurrently scheduled with course C455E. Letter grading.

**C155F. Graphic Representation of Design: Costume Rendering (2)** Studio, four hours. Requisite: course 147A or 147B. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics. May be repeated twice for credit. Concurrently scheduled with course C455F. Letter grading.

**C155G. Graphic Representation of Design: Scene Painting Techniques (2)** Studio, four hours. Requisite: course 147A or 147B. Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit. Concurrently scheduled with course C455G. Letter grading.

**C155H. Selected Topics in Graphic Representation of Design (2)** Studio, six hours. Group study of selected subjects in techniques for interpretation of design for theater. May be repeated once for credit. Concurrently scheduled with course C455H. Letter grading.

**C156A. Introduction to Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using AutoCAD. Concurrently scheduled with course C456A. Letter grading.

**C156B. Advanced Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using AutoCAD. Concurrently scheduled with course C456B. Letter grading.

**C156C. Computer-Assisted Rendering (4)** Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using three-dimensional studio. Concurrently scheduled with course C456C. Letter grading.

**C156D. Introduction to Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using Vectorworks. Concurrently scheduled with course C456D. Letter grading.

**C156E. Advanced Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using Vectorworks. Concurrently scheduled with course C456E. Letter grading.

**C156F. Introduction to Computer-Assisted Rendering (4)** Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using Vectorworks. Concurrently scheduled with course C456F. Letter grading.

**C156G. Virtual Reality Rendering for Film (2)** Studio, four hours. Requisites: courses C155C, C155H, C156A, C156B, C156C. Preparation: basic 3D modeling and rendering skills. Students learn how to translate 3D models developed in Maya into Unreal virtual game engine environment, and utilize this platform as powerful tool for development, presentation, and staging of film and theater set design. Students primarily use, Autodesk Maya and Unreal gaming engine, but are also introduced to Zbrush, Blender, Quixel, and other ancillary resources. Concurrently scheduled with course C456G. Letter grading.

**C157A. Costume Construction Techniques (2)** Studio, four hours. Requisites: courses 14A, 14B, 14C. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Introduction to draping, pattern grading fitting, and slash and spread adaptation. May be repeated once for credit. Concurrently scheduled with course C457A. P/NP or letter grading.

**C157B. Costume Construction Techniques (2)** Studio, four hours. Requisite: course C157A. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Introduction to costume drafting, construction of period undergarments. May be repeated once for credit. Concurrently scheduled with course C457B. P/NP or letter grading.

**C157C. Costume Construction Techniques (2)** Studio, four hours. Requisites: courses C157A, C157B. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Draping, patterning, and fitting techniques for period garments. May be repeated once for credit. Concurrently scheduled with course C457C. P/NP or letter grading.

**C158A. Scenic Design Technology (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of scenic designs for theater, film, and television. Study of advanced techniques and materials for construction, finishing, and rigging of scenery and properties. Concurrently scheduled with course C458A. Letter grading.

**C158B. Lighting Design Technology (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of lighting designs for theater, film, and television. Study of design, operation, and performance of lighting instruments, dimming equipment, and control systems, including automated fixtures, projection equipment, and computer systems for lighting. Concurrently scheduled with course C458B. Letter grading.

**159. Design Portfolio Project (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Preparation of complete designs and drawings for production and assembly of design portfolio and résumé. Projects prepared under guidance of faculty adviser. Letter grading.

**160. Fundamentals of Play Direction (5)** Lecture, two hours; laboratory, four hours. Requisite: course 15 with grade of C or better. Course 121 may be taken concurrently. Basic theories of play direction and their application through preparation of scenes under rehearsal conditions. P/NP or letter grading.

**163A. Directing for Stage (4)** Lecture, six hours. Requisites: courses 15, 160. Intensive development of primary directing skills and process, including text analysis and exploration of craft fundamentals as basis for director/actor communication and effective staging. Students direct scenes from plays under laboratory conditions. Letter grading.

**163B. Directing for Stage (4)** Lecture/studio, four hours. Requisite: course 15. Further development of craft elements of directorial method, with additional emphasis on psychological aspects of director/actor communication. Students direct scenes under laboratory conditions in alternative stage configurations. Letter grading.

**163C. Directing for Stage (4)** Lecture/studio, four hours. Requisite: course 15. Culminating development of directorial methods, with particular emphasis on challenges of style in text and production. Students direct scenes under laboratory conditions in alternative stage configurations. Letter grading.

**C163D. Directing Project for Stage (5)** Discussion, three hours; laboratory, four to eight hours. Requisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play or project. Students direct one-act play or project. May be repeated once for credit. Concurrently scheduled with course C263D. Letter grading.

**165. Career Preparation for Integrated Studies (4)** Lecture, four to six hours. Focus on preparing for working professionally in theatre and performance after graduation for students in the integrated studies emphasis. Students

learn about job searching and internships, creating resumes, interviews, creating a web site, pitching and presenting their own work, options for secondary higher education, etc. Letter grading.

**167A. Career Preparation for Actor (4)** Lecture/studio, four to six hours. Requisite: course 116B. Limited to seniors. Preparation for professional career as actor in film, television, theater, and commercials. Topics include audition preparation, head shots, résumés, agents, managers, casting directors, producers, unions, survival skills, professional development. Letter grading.

**167B. Audition Preparation for Singing Actor (2)** Lecture/studio, three hours. Requisite: one course from 134A through 135F. Audition preparation for singing actor, providing various techniques to prepare for and successfully execute professional musical theater auditions. Letter grading.

**170. Design and Production Project (4)** Laboratory, eight hours. Requisites: courses 14A, 14B, 14C. Experience as stage manager or designer, including participation in preparation and realization of scenic, lighting, costume, or sound designs, or stage management in production. May be repeated once for credit. Letter grading.

**171A. Advanced Theater Laboratory. (1 to 4)** Laboratory, to be arranged. Creative participation as actor or stage manager in public presentation of departmental productions. May be taken for maximum of 4 units. P/NP or letter grading.

**171B. Advanced Theater Laboratory. (1 to 4)** Laboratory, to be arranged. Creative participation in realization of production elements related to public presentation of departmental productions. May be taken for maximum of 4 units. P/NP or letter grading.

**172. Production Practice in Theater, Film, Video, and Digital Media(1 to 8)** Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

**173A. Design Assignment: Assistant Designer (2)** Studio, six hours. Requisites: courses 14A, 14B, 14C. Laboratory experience as assistant designer, including participation in preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice. Letter grading.

**173B. Production Design Assignment: Designer (2)** Studio, six hours. Requisites: courses 14A, 14B, 14C. Laboratory experience as designer, including preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice. Letter grading.

**174A. Stage Managing Techniques (2)** Studio, six hours. Requisites: courses 14A, 14B, 14C. Professional duties of stage manager. Problems of unions, professional auditions, organization, scheduling, out-of-town openings, Broadway openings, and responsibilities of lengthy run. Letter grading.

**174B. Project in Stage Management (3)** Studio, nine hours. Requisite: course 174A. Laboratory experience in professional duties of assistant stage manager, including participation as assistant stage manager in preproduction, rehearsal, and performance phases of productions. May be repeated once for credit. Letter grading.

**174C. Project in Stage Management (4)** Studio, 12 hours. Requisite: course 174A. Laboratory experience in professional duties of stage manager, including participation as stage manager in preproduction, rehearsal, and performance phases of productions. Problems of unions, auditions, organization, scheduling, and responsibilities of lengthy run. May be repeated three times for credit. Letter grading.

**174D. Advanced Stage Management Techniques (2)** Lecture, two hours; studio, two hours. Requisites: courses 147A, 174A. Professional duties of stage management. Practical training, including paper techniques, dry techniques, cue 2 cue, preshow setup, performance reports, and quick change rehearsals. Letter grading.

**175A. Summer Theater Workshop. (4, 8)** Laboratory, 12 to 24 hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

**175B. Summer Theater Workshop. (1 to 4)** Laboratory, three hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

**175C. Summer Theater Workshop. (4, 8)** Laboratory, 12 to 24 hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

**175D. Summer Theater Workshop. (4, 8)** Laboratory, 12 to 24 hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

**C176A. Production Practice in Theater with Emerging Technologies I (4)**

Studio/laboratory, four to six hours. Collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, culminating in rehearsal and public presentation. Offered as series of up to three courses in cases where multiple quarters are needed to prepare production. May be repeated once for credit. Concurrently scheduled with course C476A. Letter grading.

**C176B. Production Practice in Theater with Emerging Technologies II (4)**

Studio/laboratory, four to six hours. Collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, culminating in rehearsal and public presentation. Offered as series of up to three courses in cases where multiple quarters are needed to prepare production. May be repeated once for credit. Concurrently scheduled with course C476B. Letter grading.

**C176C. Production Practice in Theater with Emerging Technologies III (4)**

Studio/laboratory, four to six hours. Collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, culminating in rehearsal and public presentation. Offered as series of up to three courses in cases where multiple quarters are needed to prepare production. May be repeated once for credit. Concurrently scheduled with course C476C. Letter grading.

**178. Film and Television Acting Workshop (2)** (Same as Film and Television M177.) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate scenes. Three different production styles to which performers may need to adjust are (1) preproduction rehearsals with director, (2) single-camera experience, and (3) multiple-camera experience. May be repeated twice for credit. Letter grading.

**180. Senior Project (4)** Lecture or studio, three hours. Requisites: courses 101A, 101B. Preparation of conceptual or creative project to provide culminating experience in production of creative or research work. May be repeated twice for credit. Letter grading.

**181. Career Development for Actors (2)** Lecture, three hours; fieldwork, three hours. Limited to seniors. Study of business practices, career entry, and development for actors. P/NP or letter grading.

**C185A. Role of Producer in Professional Theater (2)** Lecture, three hours. Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C285A. P/NP or letter grading.

**C185B. Role of Management in Educational and Community Theater (2)** Lecture, three hours. Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C285B. P/NP or letter grading.

**187. Art Alive: Art and Improvisation in Museums (4)** (Same as Honors Collegium M116.) Seminar, four hours. Offered in collaboration with Los Angeles County Museum of Art (LACMA). Interpretation of art in collection through acting, dialogues, movement, and music. Research into history and art history and production of creative performance piece required. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**195. Community or Corporate Internships in Theater, Film, and Television (2 to 8)** Tutorial, eight, 16, or 24 hours. Limited to juniors/seniors. Internship at various theaters, studios, or entertainment organizations accentuating creative contributions, organization, and work of professionals in their various special-

ties. Students meet on regular basis with instructor and provide periodic reports of their experience. May be taken for maximum of 8 units. Individual contract with supervising faculty member required. Letter grading.

**199. Directed Research or Senior Project in Theater (2 to 8)** Tutorial, to be arranged. Limited to juniors/seniors. Research under guidance of faculty mentor. Supervised individual research or investigation. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**205A. Background of Theatrical Art: Classical and Medieval Periods (5)** Seminar, three hours. Designed for graduate students. Analysis of major plays, commentaries, and historical materials. S/U or letter grading.

**205B. Background of Theatrical Art: Renaissance, Baroque, and Rococo Periods (5)** Seminar, three hours. Designed for graduate students. Analysis of major plays, commentaries, and historical materials. S/U or letter grading.

**205C. Background of Theatrical Art: Romantic, Naturalistic, and Symbolist Periods (5)** Seminar, three hours. Designed for graduate students. Analysis of major plays, commentaries, and historical materials. S/U or letter grading.

**206. Themes in World Theater and Drama (5)** Seminar, four hours. Designed for graduate students. Selected topics in world theater history, drama, production, and/or architecture organized on thematic basis. May be repeated four times for credit. S/U or letter grading.

**208C. Practicum in Dramaturgy (2 to 12)** Laboratory, to be arranged. Requisites: courses 208A, 208B. Demonstration of competence in practice of dramaturgy through completion of approved dramaturgical assignment. May be taken for maximum of 12 units. Letter grading.

**210. Topics in World Theater and Drama (5)** Seminar, three hours. Designed for graduate students. Investigation of selected topics in world theater, drama, production, and architecture. May be repeated four times for credit. S/U or letter grading.

**C212A. Emerging Technologies and Their Uses in Live Performance (4)** (Formerly numbered C212.) Seminar, four hours. Survey of major emerging and contemporary technologies and their potential uses in and impact on live performance, from augmented and virtual reality to electronic textiles, Internet of Things, and Modern approaches to artificial intelligence. Offers solid basis for engaging in future collaborations with technologists, for self-study of new technologies, and, for those already more familiar with digital technologies, theoretical background for engaging with social context of these technologies. Concurrently scheduled with course C112A. S/U or letter grading.

**C212B. Artificial Intelligence in Live Performance (4)** Seminar, four hours. Survey of artificial intelligence (AI) technologies and their impacts on live performance. Introduction of large language models, media synthesis, computer vision, and ethical, legal, and policy issues. Exploration of how contemporary AI works, risks and benefits, and its evolving relationship to creative practice. Concurrently scheduled with course C112B. Letter grading.

**216A. Approaches to Representation (5)** Lecture, three hours; laboratory, one hour. Overview of strategies of representation from classical aesthetic theories to postmodern deconstructions of them. May be repeated once for credit. Letter grading.

**216B. Approaches to History (5)** Lecture, three hours; laboratory, one hour. Overview of key methodologies, theories, and debates in historiography of theater and performance linked to plays and performances appropriate to approach. Letter grading.

**216C. Approaches to Identification (5)** Lecture, three hours; laboratory, one hour. Overview of key theories, methods, debates, and performance texts of identificatory structure between audience member or scholar and theatrical or performance object. Letter grading.

**220. Graduate Forum (1 to 4)** Seminar, one to four hours. Limited to graduate theater students. Presentation and discussion of issues informing and affecting contemporary theater. May be repeated four times for credit. S/U grading.

**221. Introduction to Performance Studies (5)** Seminar, three hours. Investigation of performance as sustained practice in traditional disciplines such as theater, music, and dance and as lens to focus thinking about human experience in fields such as philosophy, literature, cultural anthropology, linguistics, education, and law. Emphasis on establishing interdisciplinary dialogue across many fields. Letter grading.

**C222. Character Development through Makeup and Hair Design (2)** Studio, four hours. Examination of importance of makeup and hair design in film. History and overview of hair and makeup in fashion and motion pictures. Collaboration of makeup artists and hairstylists with costume designer, actors, production designer, and director to conceptualize people in script. Exploration

of makeup artist and hairstylist roles in current film, television, and theater productions and skills needed to design makeup and hair for film and television productions. Concurrently scheduled with course C122. Letter grading.

**CM229. Contemporary Topics in Theater, Film, and Television (2)** (Same as Film and Television CM229.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM129. S/U or letter grading.

**230A. Writing for Contemporary Theater: One-Act Play (4 to 8)** Lecture, three hours; studio, two hours. Designed for graduate students. Analysis of strategy and dramatic structure of selected contemporary short plays leading to guided completion and critique of student-written one-act plays. Letter grading.

**230B. Writing for Contemporary Theater: Full-Length Play (4 to 8)** Lecture, three hours; studio, two hours. Designed for graduate students. Analysis of strategy and dramatic structure of selected contemporary full-length plays leading to guided completion and critique of student-written full-length play. Letter grading.

**230C. Writing for Contemporary Theater: Performance and Text (4 to 8)** Lecture, three hours; studio, two hours. Designed for graduate students. Exploration of structural strategies, political implications, and technical demands of selected contemporary American plays leading to guided completion and critique of student work. Letter grading.

**231. Special Topics in Playwriting (4)** Lecture, three hours. Analysis and practice of various aspects of playwriting. Variable content selected from topics such as comedy writing, docudrama, experimental theater, writing for alternative audiences, or children's theater. May be repeated twice for credit. Letter grading.

**232. Manuscript Analysis (4)** Lecture, three hours. Designed for graduate students. Critical and constructive study of dramatic techniques as employed by playwrights and screenwriters in selected examples of contemporary work. May be repeated once for credit. S/U or letter grading.

**242. Introduction to Design in Production (4)** Lecture or studio, four hours. Introduction to process of design for entertainment, collaborative role of designer, and realization of designs in production. May be repeated once for credit. Letter grading.

**243A. Scenic Design (4)** Studio, four hours. Advanced study and practice in scenic design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. S/U or letter grading.

**243B. Scenic Design (4)** Studio, four hours. Advanced study and practice in scenic design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. S/U or letter grading.

**243C. Scenic Design (4)** Studio, four hours. Advanced study and practice in scenic design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. S/U or letter grading.

**244A. Advanced Theater Production. (2 to 8)** Studio, 12 to 24 hours. Designed for graduate students. Creative participation in preparation and presentation of theatrical production. May be taken for maximum of 8 units. Letter grading.

**246A. History of Costume (4)** Lecture/studio, four hours. Designed for graduate students. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of selected periods, with study of influences of diverse cultures. Letter grading.

**246B. History of Costume (4)** Lecture/studio, four hours. Designed for graduate students. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of selected periods, with study of influences of diverse cultures. Letter grading.

**246C. History of Costume (4)** Lecture/studio, four hours. Designed for graduate students. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design

of costumes for theater, film, and television. Historic survey and in-depth exploration of selected periods, with study of influences of diverse cultures. Letter grading.

**246D. History of Costume Design (4)** Lecture, four hours. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of selected periods, with study of influences of diverse cultures. Letter grading.

**260. Directing I (4)** Lecture, four hours; studio, 24 hours. Designed for graduate students. Development of directorial skills of analysis, planning, staging, and criticism through medium of written preparations and directing of scenes. Letter grading.

**261. Directing II (4)** Studio, six hours. Development of directorial skills through play analysis and laboratory scene work. Letter grading.

**262. Directing III (4)** Studio, six hours. Practical exploration for generating original performances and composing works for stage. Introduction to processes of key contemporary artists across globe. Letter grading.

**263. Production Project in Direction for Stage (2 to 8)** Discussion, one hour; studio, 12 to 30 hours. Designed for graduate students. Direction of dramatic work, with discussion and critique of work in progress. May be repeated for maximum of 20 units. Letter grading.

**C263D. Directing Project for Stage (5)** Discussion, three hours; laboratory, four to eight hours. Requisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play or project. Students direct one-act play or project. May be repeated once for credit. Concurrently scheduled with course C163D. Letter grading.

**264. Directing Classical and Historical Drama (4)** Lecture, four hours; studio, 30 hours. Designed for graduate students. Problems in interpretation and direction of historical or classical drama through medium of laboratory scene work. May be repeated once for credit. Letter grading.

**265. Modern Theories of Production (4)** Lecture, four hours. Examination of modern theories of production from emergence of director in 19th century to present. Investigation of different responses to problems of creating vital theatrical event in context of ongoing evolution of theater as art form. Examination of contribution of significant directors and movements; relation between theater and other forms of representation. Letter grading.

**266. Theatrical Conceptualization (4)** Lecture, four hours. Examination of process of conceptualization in dramatic production; centrality of theatrical conceptualization in interpretation of dramatic text; exploration of range of possibilities inherent in different theatrical spaces and options in design components. Consideration of visual arts and music as sources of stimulus for theatrical conceptualization, with focus on collaborative aspect of theatrical production. Letter grading.

**272. Production Practice in Theater, Film, Video, and Digital Media (1 to 8)** Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

**C285A. Role of Producer in Professional Theater (2)** Lecture, three hours. Designed for graduate students. Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C185A. S/U or letter grading.

**C285B. Role of Management in Educational and Community Theater (2)** Lecture, three hours. Designed for graduate students. Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C185B. S/U or letter grading.

**298A. Special Studies in Theater Arts (2, 4)** Lecture/discussion, two or four hours. Designed for graduate students. Seminar study of problems in theater arts, organized on topic basis. May be repeated once for credit. S/U or letter grading.

**298B. Special Studies in Theater Arts (2, 4)** Lecture/discussion, two or four hours. Designed for graduate students. Seminar study of problems in theater arts, organized on topic basis. May be repeated once for credit. S/U or letter grading.

**C404E. History of Design Décor Part I: Architecture and Décor—Antiquity to Early Neoclassical (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of pre-Renaissance architectural and interior décor as manifestation of cultural, social, economic, and political influences to provide historical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C104E. Letter grading.

**C404F. History of Design Décor Part II: Architecture and Décor—Industrial Revolution to 21st Century (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of post-Renaissance architectural and interior décor as manifestation of cultural, social, economic, and political influences to provide his-



torical framework for design of scenery, costumes, and lighting for theater, film, and television. May be repeated once for credit. Concurrently scheduled with course C104F. Letter grading.

**C404G. History of Design for Performance Production Part I: Historic Costume from Prehistoric to Neoclassical (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire. May be repeated once for credit. Concurrently scheduled with course C104G. Letter grading.

**C404I. History of Design for Performance Production Part II: Historic Costume from Neoclassical to 21st Century (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Study of historic costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Survey of history of Western costume and civilian attire with global emphasis. May be repeated once for credit. Concurrently scheduled with course C104I. Letter grading.

**C404J. History of Design for Performance Production: Selected Topics of Décor and Costume Design History (4)** Lecture, four hours. Requisites: courses 14A, 14B, 14C. Historic survey and in-depth exploration of selected periods and subcategories of décor and costume. Visual representation, with emphasis on influences of global diverse cultures. May be repeated three times for credit. Concurrently scheduled with course C104J. Letter grading.

**420A. Advanced Acting I (4)** Studio, five to 13 hours. Advanced training for actor, challenging body's core, and energy and concentration needed for performance. Deepening awareness of personal, physical idiosyncrasies, acting tendencies, and body and breath control. Letter grading.

**420B. Advanced Acting I (4)** Studio, six to 18 hours. Scene work, usually from 20 to 30 minutes in length. Continuation of work on off-stage preparation, with further development of how actor goes about doing research and field-work on character being played. Letter grading.

**420C. Advanced Acting for Camera (4)** Studio, six to eight hours. Practice in performance techniques for film and television. Exploration of language used by actors and directors in film and television production, and subtle differences between acting for stage and camera. Letter grading.

**421A. Advanced Acting: Shakespeare (4, 8)** Studio/laboratory, six to 18 hours. Extending idea of autobiography and using it as art. Actor as performance artist. Playing characters quite removed from oneself. Using language. Using Shakespeare and oneself to play him. Letter grading.

**421B. Advanced Acting: Classical and Historical Drama (4)** Studio/laboratory, six to eight hours. Concepts related to Greek choruses and historical plays. Addresses group concentration and communication, choral breathing, awareness of kinetic relationship of performer's body in space, and relationship of emotion to movement, and voice. Letter grading.

**421C. Advanced Acting and Craft for Actor (4)** Studio/laboratory, six hours. Advanced acting with focus on craft, inclusive of physicality of thought, details of realism, tempo, shared rhythm and relating movement to text, and audition technique. Letter grading.

**422. Advanced Acting for Theater, Film, and Television (8 to 12)** Studio/laboratory, eight to 12 hours. Intensive performance experience. May be repeated for maximum of 24 units. Letter grading.

**423. Advanced Acting for Virtual Environments (4)** Studio, six to eight hours. Synthesizing gesture, action, and characterization into scene work for virtual reality, motion capture, and other emerging performance capture techniques. May be repeated twice for credit. Letter grading.

**424A. Advanced Voice and Text (2)** Studio, three to six hours. Development of voice for stage, including exercises for relaxation, breathing, bodily alignment, diaphragmatic breathing, head and chest resonance, and warm-up. Application of vocal techniques on contemporary and classical texts, including U.S. dialects and scansion of verse in Shakespeare. Letter grading.

**424B. Vowels and Voice Placement (1)** Studio, three hours. Requisite: course 424A. Builds on course 424A. Introduction of vowel diphthongs and triphthongs; development of forward sound, including consistent thought energy. Exercises to develop, and text to implement forward sound, including consistent thought energy. Text and warm-up exercises also covered. Letter grading.

**424C. Voice in Action (1)** Studio, three hours. Requisite: course 424A. Physical explorations and techniques for breath sourcing and increasing awareness of voice in action. Sensory awareness work, Linklater and Barry techniques, and Knight-Thompson model may also be explored. Letter grading.

**424D. Articulation, Pitch, and Vocal Choices (1)** Studio, three hours. Requisites: courses 424A, 424B, 424C. Corequisite: course 424E. Focus on articulation: work consonants, nasal continuants, plosives, fricatives, continuants,

laterals, and glides, as well as pitch and safest expanding vocal range and pitch. Exploration also of warm-ups, actions with vocal choices, and exercises with monologues. Letter grading.

**424E. Vocal Strength and Flexibility (1)** Studio, three hours. Requisites: courses 424A, 424B, 424C. Corequisite: course 242D. Further exploration of physical and vocal techniques to strengthen development of effective support for forward tone and clear speech. Exploration of functional anatomy method of Françoise Mézières and Thérèse Bertherat and de-structuring/restructuring work of Catherine Fitzmaurice. Letter grading.

**424F. Advanced Vocal Range and Flexibility (1)** Studio, three hours. Dynamic use of vocal range, including tempo, volume, pitch, resonance, actions, and physical presence. Text work focuses on developing vocal and physical flexibility and techniques designed to keep one's instrument safe while effectively communicating character. Letter grading.

**424G. Advanced Vocal Dynamics (1)** Studio, three hours. Extended range, resonance, and vocal power in support of clear, forward speech. Further fluency with vocal resonance in relation to acoustical properties of performance spaces. Using vivid vocal engagement to support dynamic expression of demanding texts, with attention to varieties of tempo, volume, pitch, resonance, range, etc. Letter grading.

**424H. Classical Vocal Comedy and Performance (1)** Studio, three hours. Creating characters using generative possibilities of rhyming couplets. Special focus on Molière's verse comedies. Letter grading.

**424I. Phonetics, Dialects, and Accents (1)** Studio, three hours. Use of phonetics to enhance actor's ability to create character using dialect and accents. Culminating dialect presentation project required. Letter grading.

**424J. Acting for Microphone (2)** Studio, four to six hours. Techniques including textual analysis and character work in art and craft of acting for microphone. Letter grading.

**425A. Advanced Movement I (2 to 4)** Studio/laboratory, three to six hours. Discovery of body's unique language through exercises designed to explore and free total instrument. Development of flexible actor with range, expression, and confidence physically. May be repeated for maximum of 12 units. Letter grading.

**425B. Advanced Movement I (2 to 4)** Studio/laboratory, three to six hours. Discovery of body's unique language through exercises designed to explore and free total instrument. Development of flexible actor with range, expression, and confidence physically. Awakening of imagination while exploring worlds of ritual, animal, conceptual, and modern dance movements. Letter grading.

**425C. Advanced Movement I (2 to 4)** Studio/laboratory, three to six hours. Discovery of body's unique language through exercises designed to explore and free total instrument. Development of flexible actor with range, expression, and confidence physically. Awakening of imagination while exploring worlds of ritual, animal, conceptual, and modern dance movements. Letter grading.

**425D. Advanced Training Intensive (2)** Studio, 12 to 15 hours per week for four weeks. Advanced training class, challenging body's core, energy, and concentration needed for performance. Deepening awareness of personal, physical idiosyncrasies and acting tendencies, body and breath control. May be repeated once for credit. Letter grading.

**425E. Advanced Conditioning and Combat for Theater, Film, and Television (2)** Studio, six hours. Body conditioning, basic striking skills, tumbling, break-falls, redirection of energy, stunts, gymnastics, martial arts, use of weapons, and integration of skills in performance contexts. Letter grading.

**425F. Advanced Movement II (2 to 4)** Studio/laboratory, three to six hours. Presentation of more complete picture of stage movement and its relationship to theater, music, and dance. Advancement of physical training of individual actors to their maximum potential. Experience in techniques and discovery of origins of variety of acrobatic and dance disciplines, including ballet, ballroom, period dance, and circus techniques. Letter grading.

**425G. Advanced Movement III (2, 4)** Studio, three to six hours. Advanced physical training for actors in one or more movement, dance, or combat discipline: capoeira, martial arts, ballet, ballroom, period dance, circus techniques. Letter grading.

**425H. Advanced Movement III (2, 4)** Studio, three to six hours. Advanced physical training for actors in one or more movement, dance, or combat discipline: capoeira, martial arts, ballet, ballroom, period dance, circus techniques. Letter grading.

**425I. Advanced Movement III (2, 4)** Studio, three to six hours. Advanced physical training for actors in one or more movement, dance, or combat discipline: capoeira, martial arts, ballet, ballroom, period dance, circus techniques. Letter grading.

**426A. Alexander Techniques (2, 4)** Studio, three to six hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. Letter grading.

**426B. Alexander Techniques (2, 4)** Studio, three to six hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. Letter grading.

**426C. Alexander Techniques (2, 4)** Studio, three to six hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. Letter grading.

**430A. Advanced Studies in Playwriting (4 to 8)** Lecture, three hours. Limited to MFA playwriting program students. Guided completion of full-length scripts for stage. S/U or letter grading.

**430B. Advanced Studies in Playwriting (4 to 8)** Lecture, three hours. Limited to MFA playwriting program students. Guided completion of full-length scripts for stage. S/U or letter grading.

**430C. Advanced Studies in Playwriting (4 to 8)** Lecture, three hours. Limited to MFA playwriting program students. Guided completion of full-length scripts for stage. S/U or letter grading.

**431. Special Topics in Playwriting (4)** Discussion, three hours. Designed for MFA playwriting program students. Analysis and practice of varied aspects of playwright's art. Variable content selected from topics such as comedy writing, docudrama, writing for alternative audiences, adaptation from stage to screen, children's theater, or improvisational techniques. May be repeated twice for credit. S/U or letter grading.

**432. Theatrical Adaptation (4)** Lecture, four hours. Requisites: courses 230A, 230B, 230C. Survey of contemporary adaptation for stage, with selected readings of playwriting adaptation techniques, and outline and development of adaptation for stage. Letter grading.

**C433A. Script Development Workshop (4 to 8)** Lecture, three hours; studio, four to 24 hours. Designed for graduate students. Guided process of script development, with emphasis on communication, artistic growth, and professional process. May be taken for maximum of 8 units. Concurrently scheduled with course C133A. Letter grading.

**433B. Script Development Workshop (4 to 8)** Lecture, three hours; studio, four to 24 hours. Designed for graduate students. Guided process of script development, with emphasis on communication, artistic growth, and professional process. May be taken for maximum of 8 units. Letter grading.

**C433C. Script Development Workshop (4 to 8)** Lecture, three hours; studio, four to 24 hours. Designed for graduate students. Guided process of script development, with emphasis on communication, artistic growth, and professional process. May be taken for maximum of 8 units. Concurrently scheduled with course C133C. Letter grading.

**435AF. Problems in Advanced Writing for Stage (0)** Lecture, two hours. Limited to MFA candidates. Review discussion and critique of playwriting projects. May be repeated for maximum of 6 units. In Progress grading (credit to be given only on completion of courses 435AW and 435AS).

**435AS. Problems in Advanced Writing for Stage (2)** Lecture, two hours. Limited to MFA candidates. Review discussion and critique of playwriting projects. May be repeated for maximum of 6 units. S/U grading.

**435AW. Problems in Advanced Writing for Stage (0)** Lecture, two hours. Limited to MFA candidates. Review discussion and critique of playwriting projects. May be repeated for maximum of 6 units. In Progress grading (credit to be given only on completion of course 435AS).

**441A. Lighting Design (4)** Lecture/studio, four hours. Study and practice in lighting actors, emphasizing textual and character analysis from lighting designer's perspective, conceptual development with director, effect of light on dynamics of staging, use of color in light, and relationship of lighting designer to actor. May be repeated once for credit. Letter grading.

**441B. Lighting Design (4)** Lecture/studio, four hours. Study of use of light and color to define space, effect of light on scenery and costumes, lighting for arena/thrust theaters, multiscreen productions, lighting patterns, and moving scenery. May be repeated once for credit. Letter grading.

**441C. Lighting Design (4)** Lecture/studio, four hours. Investigation of lighting design in production, musical theater, opera, touring, and repertory situations. Study of analysis of script and score for lighting designer. May be repeated once for credit. Letter grading.

**C441D. Projection Design and Media I (4)** (Formerly numbered 441D.) Lecture, two hours; laboratory, two hours. Study and practice of projection and media techniques. Emphasis on analysis, design, and execution of theatrical projection and photographic technique for stage. May be repeated once for credit. Concurrently scheduled with course C141D. S/U or letter grading.

**C441E. Projection Design and Media II (4)** Lecture/laboratory, four hours. Continuation of course C441D. Advanced study and practice in projection and media techniques, with emphasis on analysis, design, and execution of theatrical projection and photographic technique for stage. May be repeated once for credit. Concurrently scheduled with course C141E. S/U or letter grading.

**442A. Costume Design (4)** Lecture/studio, four hours. Advanced study and practice in costume design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, period style, and character analysis leading to visual presentation of design. Study of costume design for theatrical productions, ballet, opera, and musical theater. May be repeated once for credit. Letter grading.

**442B. Costume Design (4)** Lecture/studio, four hours. Advanced study and practice in costume design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, period style, and character analysis leading to visual presentation of design. Study of costume design for theatrical productions, ballet, opera, and musical theater. May be repeated once for credit. Letter grading.

**442C. Costume Design (4)** Lecture/studio, four hours. Advanced study and practice in costume design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, period style, and character analysis leading to visual presentation of design. Study of costume design for theatrical productions, ballet, opera, and musical theater. May be repeated once for credit. Letter grading.

**443A. Advanced Scenic Design (4)** Studio, four hours. Advanced study and practice of scenic design for theater, with emphasis on cultivating imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design, as well as exploration of students' individual cognitive and artistic process and refinement of techniques. May be repeated twice for credit. S/U or letter grading.

**443B. Advanced Scenic Design (4)** Studio, four hours. Advanced study and practice of scenic design for theater, with emphasis on cultivating imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design, as well as exploration of students' individual cognitive and artistic process and refinement of techniques. May be repeated twice for credit. S/U or letter grading.

**443C. Advanced Scenic Design (4)** Studio, four hours. Advanced study and practice of scenic design for theater, with emphasis on cultivating imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design, as well as exploration of students' individual cognitive and artistic process and refinement of techniques. May be repeated twice for credit. S/U or letter grading.

**443D. Advanced Scenic Design (4)** Studio, four hours. Advanced study and practice of scenic design for theater, with emphasis on cultivating imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design, as well as exploration of students' individual cognitive and artistic process and refinement of techniques. May be repeated twice for credit. S/U or letter grading.

**445A. Production Design for Film, Television, and Entertainment Media (4)** Lecture/studio, four hours. Study and practice in design of scenic environment for film, video, and entertainment media, including effect of differing media on design choices, role of production designers and art directors, and design for single- and multiple-camera production. May be repeated once for credit. Letter grading.

**445B. Production Design for Film, Television, and Entertainment Media (4)** Lecture/studio, four hours. Study and practice in design of scenic environment for film, video, and entertainment media, including effect of differing media on design choices, role of production designers and art directors, and design for single- and multiple-camera production. May be repeated once for credit. Letter grading.

**445C. Production Design for Film, Television, and Entertainment Media (4)**

Lecture/studio, four hours. Study and practice in design of scenic environment for film, video, and entertainment media, including effect of differing media on design choices, role of production designers and art directors, and design for single- and multiple-camera production. May be repeated once for credit. Letter grading.

**C446A. Art and Process of Entertainment Design (4)** Lecture, three hours. Conceptualization, design, and prototyping of interactive theatrical events. Exploration of original forms of media-rich entertainment experience through lectures, presentations, and seminar participation. Students form collaborative teams to conceive and propose interactive entertainment events. Concurrently scheduled with course C146A. Letter grading.

**C446B. Art and Process of Entertainment Design (4)** Lecture, three hours. Conceptualization, design, and prototyping of interactive theatrical events. Prototype development; two to five proposals to be more completely defined and developed. Students form collaborative teams for further conceptual development of their project proposals. May be repeated once for credit. Concurrently scheduled with course C146B. Letter grading.

**448A. Costume Design for Film, Television, and Entertainment Media (4)** Lecture/studio, four hours. Study and practice in design of costumes for live and virtual characters in film, television, and entertainment media, including effect of differing media on design choices. May be repeated once for credit. Letter grading.

**448B. Costume Design for Film, Television, and Entertainment Media (4)** Lecture/studio, four hours. Study and practice in design of costumes for live and virtual characters in film, television, and entertainment media, including effect of differing media on design choices. May be repeated once for credit. Letter grading.

**448C. Costume Design for Film, Television, and Entertainment Media (4)** Lecture/studio, four hours. Study and practice in design of costumes for live and virtual characters in film, television, and entertainment media, including effect of differing media on design choices. May be repeated twice for credit. Letter grading.

**448D. Deconstructing Glamour (4)** Lecture, three hours; screenings, two hours. Exploration of integration of costume design into filmmaking process and illumination of work required to bring characters from written page to life. Letter grading.

**449A. Design Thesis Preparation (2)** Lecture/studio, four hours. Series of group design projects that prepare design students for thesis examination. In Progress grading (credit to be given only on completion of courses 449B and 449C).

**449B. Design Thesis Preparation (2)** Lecture/studio, four hours. Series of group design projects that prepare design students for thesis examination. In Progress grading (credit to be given only on completion of course 449C).

**449C. Design Thesis Project (4)** Lecture/studio, four hours. Series of group design projects that serve as comprehensive examination for MFA degree in entertainment design. Review and evaluation of projects by design faculty members from all areas of curriculum. Letter grading.

**449D. Thesis for Costume Design in Theater, Film, and Television (4)** Lecture/studio, four hours. For costume design students. One major scenography design project that serves as comprehensive examination for MFA degree in entertainment design. Review and evaluation of projects by design faculty members from all areas of curriculum. May be repeated once for credit. Letter grading.

**C451A. Scenic Design (4)** Lecture/studio, four hours. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C151A. Letter grading.

**C451B. Scenic Design for Theater (4)** Lecture/studio, four hours. Study of scenic design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C151B. Letter grading.

**C451C. Production Design for Film, Television, and Video (4)** Lecture/studio, four hours. Study of role of art director, scenic design for single-camera and multicamera production, and set decoration. May be repeated once for credit. Concurrently scheduled with course C151C. Letter grading.

**C452A. Lighting Design (4)** Lecture/studio, four hours. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to actor. May be repeated once for credit. Concurrently scheduled with course C152A. Letter grading.

**C452B. Lighting Design for Theater (4)** Lecture/studio, four hours. Study of lighting design for proscenium, thrust, and arena configurations, music theater, and concert lighting. May be repeated once for credit. Concurrently scheduled with course C152B. Letter grading.

**C452C. Lighting Design for Television (4)** Lecture/studio, four hours. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C152C. Letter grading.

**C452D. Lighting Design for Performances and Special Events (4)** Lecture, four hours. Requisites: courses C452A, C452B, C452C. Advanced topics in lighting design, including live performances for concerts, exhibitions, and live events. Concurrently scheduled with course C152D. Letter grading.

**C452E. Lighting Design For Dance (4)** Lecture, four hours. Requisite: course C441A, C441B, or C441C. Advanced topics in lighting design, concentrating on live dance performance in all styles. Concurrently scheduled with course C152E. Letter grading.

**C453A. Costume Design (4)** Lecture/studio, four hours. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated twice for credit. Concurrently scheduled with course C153A. Letter grading.

**C453B. Costume Design for Theater (4)** Lecture/studio, four hours. Study of costume design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated twice for credit. Concurrently scheduled with course C153B. Letter grading.

**C453C. Costume Design for Film and Television (4)** Lecture/studio, four hours. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. May be repeated twice for credit. Concurrently scheduled with course C153C. Letter grading.

**C453D. Projects in Costume Design Management (4)** Lecture, three hours. Examination of professional duties of costume designers, set costumers, and supervisors, especially management of production logistics, including but not limited to costume breakdowns, creating budgets, adhering to and overseeing them, as well as set costumer training for film and television, practicing on-set protocol, breakdown of daily responsibilities, and assembling set costumer kits ready for production. Practice with professional resourcefulness to move from abstract to substantive problem solving, maintaining creative and collaborative environment while adhering to logistical obstacles and tasks. Concurrently scheduled with course C153D. Letter grading.

**C453E. History of Costume Design in Movies (4)** Lecture, three hours; screenings, two to six hours. History of costume design within context of 20th-century fashion and film history, including evolution of role of costume designer since early days of film industry. Role of costume designer and contribution of costume design to cinematic storytelling. Concurrently scheduled with course C153E. Letter grading.

**C453F. Practice of Costume Design for Film Productions (4)** Lecture, three hours. Introduction to costume design as tool for storytelling, exploring integration of costume design and filmmaking process and what it takes to bring characters to life. Skills needed to effectively costume short narrative films, including script breakdown, collaboration with directors and actors, and how to manage production challenges. Concurrently scheduled with course C153F. Letter grading.

**C454A. Sound Design (4)** Lecture/studio, four hours. Introduction to sound and audio in acoustic, audio, and digital domain. Study and practice of techniques for recording, editing, and creating soundscapes. May be repeated once for credit. Concurrently scheduled with course C154A. Letter grading.

**C454B. Sound Design for Musicals (4)** Lecture/studio, four hours. Exploration of sound design for theater and techniques for mixing, reinforcement, and signal processing. Topics include use of delay, equalization, and microphone placement for theater sound reinforcement with focus on mixing musicals. Covers paperwork needed to complete show. Tuning space, equalization, and some advanced projects involving programming and mixing on various consoles. May be repeated once for credit. Concurrently scheduled with course C154B. Letter grading.

**C454C. Sound for Film and Television (4)** Lecture/studio, four hours. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C154C. Graduate students expected to produce designs demonstrating higher level of proficiency and skill. Letter grading.

**C454D. Script Analysis for Sound Design (4)** (Formerly numbered C444C.) Lecture/studio, four hours. Requisites: courses C454A, C454B. Advanced study and practice in preparation of theater sound design with emphasis on

analysis of script and score, conceptual development of design, and techniques to realize design. Concurrently scheduled with course C154D. Letter grading.

**C454F. Field Recording and Content Creation for Sound Designers (4)** Lecture/studio, four hours. Requisites: courses C454A, C454B. Advanced techniques for creating content, focused on field recording and capturing sounds and their application for performance. Concurrently scheduled with course C154F. Letter grading.

**C454G. Music Technology for Sound Design (4)** Lecture/studio, four hours. Requisites: courses C454A, C454B. Overview of music, musical genres, and their structure with goal of understanding music composition. Students use software to create musical ideas and sound design components. Concurrently scheduled with course C154G. Letter grading.

**C455A. Graphic Representation of Design: Perspective Drawing (2)** Studio, four hours. Requisite: course 147A or 147B. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-point perspective, form light, shade, and textures. Graduate students expected to produce drawings demonstrating higher level of proficiency and skill. Concurrently scheduled with course C155A. Letter grading.

**C455B. Graphic Representation of Design: Multimedia Rendering (2)** Studio, four hours. Study and practice of multimedia rendering techniques as they relate to interpretation of scenic, lighting, and costume renderings, with focus on human form in space. Weekly demonstrations of wide variety of art media, including watercolor, markers, pastel, and collage rendering. May be repeated twice for credit. Concurrently scheduled with course C155B. Letter grading.

**C455C. Graphic Representation of Design: Digital Rendering (2)** Studio, four hours. Study and practice in rendering costumes, lighting, and scenic elements with combination of hand and digital rendering techniques. Coverage of rendering from life, enhancing final rendering with variety of computer-assisted formats to create polished sophisticated presentations for theater, film, and television productions. May be repeated twice for credit. Concurrently scheduled with course C155C. Letter grading.

**C455D. Graphic Representation of Design: Model Making (2)** Studio, four hours. Requisite: course 147A or 147B. Study of model for representation of scenic designs from initial working prototypes to finished color models. Use of wide variety of materials and techniques for execution of model. Graduate students expected to produce models demonstrating higher level of proficiency and skill. Concurrently scheduled with course C155D. Letter grading.

**C455E. Graphic Representation of Design: Life Drawing (2)** Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. May be repeated twice for credit. Concurrently scheduled with course C155E. Letter grading.

**C455F. Graphic Representation of Design: Costume Rendering (2)** Studio, four hours. Requisite: course 147A or 147B. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics. May be repeated twice for credit. Concurrently scheduled with course C155F. Letter grading.

**C455G. Graphic Representation of Design: Scene Painting Techniques (2)** Studio, four hours. Requisite: course 147A or 147B. Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit. Concurrently scheduled with course C155G. Letter grading.

**C455H. Selected Topics in Graphic Representation of Design (2)** Studio, six hours. Group study of selected subjects in techniques for interpretation of design for theater. May be repeated once for credit. Letter grading.

**C456A. Introduction to Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using AutoCAD. Concurrently scheduled with course C156A. Letter grading.

**C456B. Advanced Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using AutoCAD. Concurrently scheduled with course C156B. Letter grading.

**C456C. Computer-Assisted Rendering (4)** Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using three-dimensional studio. Concurrently scheduled with course C156C. Letter grading.

**C456D. Introduction to Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using Vectorworks. Concurrently scheduled with course C156D. Letter grading.

**C456E. Advanced Computer-Assisted Drafting (4)** Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using Vectorworks. Concurrently scheduled with course C156E. Letter grading.

**C456F. Introduction to Computer-Assisted Rendering (4)** Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using Vectorworks. Concurrently scheduled with course C156F. Letter grading.

**C456G. Virtual Reality Rendering for Film (2)** Studio, four hours. Requisites: courses C455C, C455H, C456A, C456B, C456C. Preparation: basic 3D modeling and rendering skills. Students learn how to translate 3D models developed in Maya into Unreal virtual game engine environment, and utilize this platform as powerful tool for development, presentation, and staging of film and theater set design. Students primarily use, Autodesk Maya and Unreal gaming engine, but are also introduced to Zbrush, Blender, Quixel, and other ancillary resources. Concurrently scheduled with course C156G. Letter grading.

**C457A. Costume Construction Techniques (2)** Studio, four hours. Requisites: courses 14A, 14B, 14C. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Introduction to draping, pattern grading fitting, and slash and spread adaptation. May be repeated once for credit. Concurrently scheduled with course C157A. S/U or letter grading.

**C457B. Costume Construction Techniques (2)** Studio, four hours. Requisite: course C457A. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Introduction to costume drafting, construction of period undergarments. May be repeated once for credit. Concurrently scheduled with course C157B. S/U or letter grading.

**C457C. Costume Construction Techniques (2)** Studio, four hours. Requisites: courses C457A, C457B. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. Draping, patterning, and fitting techniques for period garments. May be repeated once for credit. Concurrently scheduled with course C157C. S/U or letter grading.

**457D. Advanced Historical Costume Interpretation and Construction (4)** Lecture/studio, four hours. Introduction to costume design as tool for interpretation of one renowned artwork and as intrinsic element of art history to gain expertise in costume and pattern making, while creating half-scale costume inspired by masterwork and to gain familiarity with artist's life and social milieu. Letter grading.

**C458A. Scenic Design Technology (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of scenic designs for theater, film, and television. Study of advanced techniques and materials for construction, finishing, and rigging of scenery and properties. Concurrently scheduled with course C158A. Letter grading.

**C458B. Lighting Design Technology (4)** Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of lighting designs for theater, film, and television. Study of design, operation, and performance of lighting instruments, dimming equipment, and control systems, including automated fixtures, projection equipment, and computer systems for lighting. Concurrently scheduled with course C158B. Letter grading.

**459A. Directing for Theater, Film, and Television (4)** Lecture, three hours. Limited to graduate theater students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in three media. S/U or letter grading.

**459B. Directing for Theater, Film, and Television (4)** Lecture, three hours. Limited to graduate theater students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in three media. S/U or letter grading.

**460AF. Contemporary Issues in Direction (1)** Discussion, three hours. Designed for graduate students. Discussion of role of director in contemporary professional practice. Review discussion and critique of directing projects. May be repeated for maximum of 4 units. Letter grading.

**460AS. Contemporary Issues in Direction (1)** Discussion, three hours. Designed for graduate students. Discussion of role of director in contemporary professional practice. Review discussion and critique of directing projects. May be repeated for maximum of 4 units. Letter grading.

**460AW. Contemporary Issues in Direction (1)** Discussion, three hours. Designed for graduate students. Discussion of role of director in contemporary professional practice. Review discussion and critique of directing projects. May be repeated for maximum of 4 units. Letter grading.

**462. Advanced Directing. (8, 12)** Studio, 12 or 30 hours. Designed for graduate students. Advanced problems in directing for theater, film, and television. May be repeated for maximum of 24 units. Letter grading.

**463. Production Project in Direction for StagE. (8, 12)** Studio, 24 hours. Designed for graduate students. Creative participation as director in conceptualization and preparation of dramatic work. Letter grading.

**472. Production Practice in Theater, Film, Video, and Digital Media (1 to 8)** Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

**474. Advanced Projects in Design and Production (4)** Lecture/studio, four hours. Study and practice in preparation and execution of designs for theater, film, video, and related entertainment forms. As contributing artistic member of design team, creative responsibilities include designer, technical supervisor, or production manager. May be repeated for maximum of 16 units. Letter grading.

**475A. Graduate Design Portfolio Project: Scenic Design (2)** Lecture, four hours; studio, four to eight hours. Preparation: at least six master scenic design courses. Preparation of complete designs and drawings for theatrical, film, operatic, and theoretical productions and assembling of design portfolio and résumé. Information about industry demands and protocol for portfolio presentation and review, with projects prepared under guidance of respective design faculty adviser. Letter grading.

**475B. Graduate Design Portfolio Project: Lighting Design (2)** Lecture, four hours; studio, four to eight hours. Preparation: at least six master lighting design courses. Preparation of complete designs and drawings for theatrical, film, operatic, and theoretical productions and assembling of design portfolio and résumé. Information about industry demands and protocol for portfolio presentation and review, with projects prepared under guidance of respective design faculty adviser. Letter grading.

**475C. Graduate Design Portfolio Project: Costume Design (2)** Lecture, four hours; studio, four to eight hours. Preparation: at least six master costume design courses. Preparation of complete designs and drawings for theatrical, film, operatic, and theoretical productions and assembling of design portfolio and résumé. Information about industry demands and protocol for portfolio presentation and review, with projects prepared under guidance of respective design faculty adviser. Letter grading.

**C476A. Production Practice in Theater with Emerging Technologies I (4)** Studio/laboratory, four to six hours. Collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, culminating in rehearsal and public presentation. Offered as series of up to three courses in cases where multiple quarters are needed to prepare production. May be repeated once for credit. Concurrently scheduled with course C176A. Letter grading.

**C476B. Production Practice in Theater with Emerging Technologies II (4)** Studio/laboratory, four to six hours. Collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, culminating in rehearsal and public presentation. Offered as series of up to three courses in cases where multiple quarters are needed to prepare production. May be repeated once for credit. Concurrently scheduled with course C176B. Letter grading.

**C476C. Production Practice in Theater with Emerging Technologies III (4)** Studio/laboratory, four to six hours. Collaborative creative and technical development of all aspects of theatrical production incorporating emerging and/or advanced technologies, culminating in rehearsal and public presentation. Offered as series of up to three courses in cases where multiple quarters are needed to prepare production. May be repeated once for credit. Concurrently scheduled with course C176C. Letter grading.

**495A. Practicum and Practice in Teaching Theater (2)** Seminar, to be arranged; discussion, two hours. Study and practice of teaching theater at university level. Orientation and preparation of graduate (PhD) students who have responsibility to assist in teaching undergraduate courses in department. Discussion of problems common to teaching experience. S/U grading.

**495B. Practicum and Practice in Teaching Theater (2)** Seminar, to be arranged; discussion, two hours. Study and practice of teaching theater at university level. Orientation and preparation of graduate (PhD) students who have responsibility to assist in teaching undergraduate courses in department. Discussion of problems common to teaching experience. S/U grading.

**495C. Practicum and Practice in Teaching Theater (2)** Seminar, to be arranged; discussion, two hours. Study and practice of teaching theater at university level. Orientation and preparation of graduate (PhD) students who have responsibility to assist in teaching undergraduate courses in department. Discussion of problems common to teaching experience. S/U grading.

**498. Professional Internship in Theater, Film, and Television (4 to 12)** Tutorial, to be arranged. Full- or part-time at studio or on professional project. Designed for advanced MFA students. Internship at various film, television, or theater facilities accentuating creative contribution, organization, and work of professionals in their various specialties. Given only when projects can be scheduled. S/U or letter grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596A. Directed Individual Studies: Research (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596B. Directed Individual Studies: Writing (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596C. Directed Individual Studies: Directing. (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596D. Directed Individual Studies: Design (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596E. Directed Individual Studies: Acting (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

**596F. Directed Individual Studies: Production (2 to 12)** Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

**597. Preparation for PhD Qualifying Examinations in Theater Arts (2 to 12)** Tutorial, to be arranged. Writing of prospectus and three reading lists. May be repeated for credit. S/U grading.

**599. PhD Dissertation in Theater Arts (2 to 12)** Tutorial, to be arranged. Preparation: advancement to PhD candidacy. Research for and writing of PhD dissertation. May be repeated for credit. S/U grading.

# University Studies

## University Studies Courses

### Lower Division

**1. Ace the UCLA College-to-Career Transition (1)** Seminar, one hour (six weeks). Limited to continuing students. Students are introduced to the value of a research institution, its transferable skills, and how they can most effectively maximize time at UCLA to prepare for the college-to-career transition. Offers opportunities for students to reflect upon what they have accomplished both inside and outside of the classroom and how they may market the skills and strengths they have cultivated. Features modules highlighting transferable skills acquired through coursework and co-curricular high impact practices; how to foster meaningful relationships with diverse communities of scholars; the demonstration of awareness of career readiness competencies; how to assess one's values, skills, interests, and strengths; and how to navigate the college-to-career transition. Offered in summer only. P/NP grading.

**10A. ACE UCLA | Critical Strategies to Achieve Undergraduate Excellence (First- and Second-Year Students) (2)** Seminar, two hours. Not open for credit to students with credit for course 10B, 10C, 10D, 10E, 10F, or former course 10. Imparts students with critical strategies to achieve undergraduate excellence at top-tier research institution. Study of research university's mission, rigors, and expectations of students, as well as its pedagogical implications. Cultivation of formal space on campus where UCLA students learn to engage collaboratively with their diverse community of scholars; to comprehend and apply effective learning strategies and theoretical foundations of college student development; to navigate complex structure of UCLA; to practice resilience and growth mindset; to think critically about diversity and their identity; and to be fully aware of their value to intellectual fabric of institution as contributors to innovative research and scholarship. P/NP grading.

**10B. ACE UCLA | Critical Strategies to Achieve Undergraduate Excellence for International Students (2)** Seminar, two hours. Not open to students who have completed University Studies 10A, 10C, 10D, or former course 10. Designed to assist first-year international students in making successful transition to UCLA and to U.S. by focusing on academic, social, and emotional aspects of transition. Study of research university's history, mission, rigors, expectations of students, and pedagogical implications. Cultivation of formal space on campus where UCLA students learn to engage both diplomatically and collaboratively with diverse community of scholars; to comprehend and apply theoretical foundations of college student development; to navigate complex structure of UCLA; and to be fully aware of their value to intellectual fabric of institution as contributors to innovative research and scholarship. P/NP grading.

**10C. ACE UCLA | Critical Strategies to Achieve Undergraduate Excellence for Life Sciences Students (2)** Seminar, two hours. Not open for credit to students with credit for course 10A, 10B, 10D, 10E, 10F, or former course 10. Imparts students interested in or pursuing majors in life sciences with critical strategies to achieve undergraduate excellence at top-tier research institution. Study of research university's mission, rigors, and expectations of students, as well as its pedagogical implications. Cultivation of formal space on campus where UCLA students learn to engage collaboratively with their diverse community of scholars; to comprehend and apply effective learning strategies and theoretical foundations of college student development; to navigate complex structure of UCLA; to practice resilience and growth mindset; to think critically about diversity and their identity; and to be fully aware of their value to intellectual fabric of institution as contributors to innovative research and scholarship. P/NP grading.

**10D. ACE UCLA | Critical Strategies to Achieve Undergraduate Excellence (Transfers) (2)** Seminar, two hours. Not open for credit to students with credit for course 10A, 10B, 10C, 10E, 10F, or former course 10. Designed for transfer students. Imparts students with critical strategies to achieve undergraduate excellence at top-tier research institution. Study of research university's mission, rigors, and expectations of students, as well as its pedagogical implications. Cultivation of formal space on campus where UCLA students learn to engage collaboratively with their diverse community of scholars; to comprehend and apply effective learning strategies and theoretical foundations of college student development; to navigate complex structure of UCLA; to practice resilience and growth mindset; to think critically about diversity and their identity; and to be fully aware of their value to intellectual fabric of institution as contributors to innovative research and scholarship. P/NP grading.

**10E. ACE UCLA | Critical Strategies to Achieve Undergraduate Excellence for First-Generation Students (2)** Seminar, two hours. Not open for credit to students with credit for course 10A, 10B, 10C, 10D, 10F, or former course 10. Designed for first-generation college students. Imparts students with critical strategies to achieve undergraduate excellence at top-tier research institution. Study of research university's mission, rigors, and expectations of students, as well as its pedagogical implications. Cultivation of formal space on campus where UCLA students learn to engage collaboratively with their diverse community of scholars; to comprehend and apply effective learning strategies and theoretical foundations of college student development; to navigate complex structure of UCLA; to practice resilience and growth mindset; to think critically about diversity and their identity; and to be fully aware of their value to intellectual fabric of institution as contributors to innovative research and scholarship. P/NP grading.

**10F. ACE UCLA | Critical Strategies to Achieve Undergraduate Excellence for Humanities Students (2)** Seminar, two hours. Not open for credit to students with credit for course 10A, 10B, 10C, 10D, 10E, or former course 10. Imparts students interested in or pursuing majors in humanities with critical strategies to achieve undergraduate excellence at top-tier research institution. Study of research university's mission, rigors, and expectations of students, as well as its pedagogical implications. Cultivation of formal space on campus where UCLA students learn to engage collaboratively with their diverse community of scholars; to comprehend and apply effective learning strategies and theoretical foundations of college student development; to navigate complex structure of UCLA; to practice resilience and growth mindset; to think critically about diversity and their identity; and to be fully aware of their value to intellectual fabric of institution as contributors to innovative research and scholarship. P/NP grading.

**15A. Collaborative Learning Workshops for Humanities and Social Sciences Majors (2)** Seminar, two hours. Designed for students in First Year Scholars Program (FYSP). Part I of three-part series of collaborative learning and community-building work sessions. Collaborative work spaces and participatory learning environments are integral component of student development. Creates specific and unique space for FYSP scholars to cultivate community and support, as well as develop critical strategies to achieve undergraduate excellence at top-tier institution. Engages students collaboratively with diverse community of scholars; supports their understanding and application of effective learning strategies; guides students in practice growth mindset, navigation of complex structure of UCLA, thinking critically about diversity and their identity, and being fully aware of their value to intellectual fabric of institution as contributors to innovative research scholarship. P/NP grading.

**15B. Collaborative Learning Workshops for Humanities and Social Sciences Majors (2)** Seminar, two hours. Requisite: course 15A. Designed for students in First Year Scholars Program. Workshops are integral component of student learning and development. Continues to cultivate learning communities. Workshops prepare students for second year, as they become more intentionally engaged in academic community, at UCLA and beyond. Workshops foster academic, professional, and personal development of students majoring in humanities and social sciences. Instructors, peer mentors, and campus partners facilitate interactive workshops that help students transition to, engage with, and navigate UCLA as they culminate their first year at university. P/NP grading.

**15C. Collaborative Learning Workshops for Humanities and Social Sciences Majors (2)** Seminar, two hours. Requisite: course 15B. Designed for students in First Year Scholars Program (FYSP). Part III of three-part series of collaborative learning and community-building work sessions. Students work together on ongoing research proposal and project presented at culmination of program. Collaborative work spaces and participatory learning environments are integral component of student development. Creates specific and unique space for FYSP scholars to cultivate community and support, as well as develop critical strategies to achieve undergraduate excellence at top-tier institution. Engages students collaboratively with diverse community of scholars; supports their understanding and application of effective learning strategies; guides students in practice growth mindset, navigation of complex structure of UCLA, thinking critically about diversity and their identity, and being fully aware of their value to intellectual fabric of institution as contributors to innovative research scholarship. P/NP grading.

**30. How to Succeed at UCLA: Retention (2)** Seminar, two hours. Limited to students in Bruin Readmission Program. Designed to provide students who are working toward readmission critical understanding of how they and others arrive at their dismissal status and steps they can take that lead to academic success in future. Examination of research on retention and departure in high education and both individual and collective strategies for academic success. P/NP grading.

# Urban Planning

## Urban Planning Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**M110. Inequality and Democracy: Analysis and Praxis of Public Problems (4)** (Same as Social Welfare M110.) Lecture, three hours; discussion, one hour. Analysis and praxis of public problems. Taking up case of persistent inequality in liberal democracies, coverage of key frameworks and methodologies for understanding and analyzing poverty and inequality and examination of forms of action, from role of government to social movements, that seek to intervene in such problems. Study of problems, programs, policies, and politics in globally interconnected, transnational world, while avoiding analytical divide between global north and global south. Letter grading.

**120. Introduction to Cities and Planning (4)** (Same as Public Affairs M109.) Lecture, three hours; discussion, one hour. Survey of urban history and evolution in U.S., urban social theory, current growth trends, system of cities, urban economy and economic restructuring, traditional and alternative location theories, urban transportation, and residential location and segregation. Letter grading.

**121. Urban Policy and Planning (4)** Lecture, three hours. Examination of current urban planning and policy issues and debates, such as normative theories of good urban form, metropolitan organization and governance, economic development and growth management, edge cities, spatial mismatch hypothesis, urban poverty, racial/ethnic inequality, gender and urban structure, sustainability, and future of cities. P/NP or letter grading.

**122. Policy, Planning, and Community (4)** (Same as Asian American Studies M108.) Lecture, three hours; field laboratory. Project-oriented methods course on conducting needs assessment in Asian American communities. Geographic information systems to be used to define problems and needs. Letter grading.

**129. Special Topics in Urban Policy and Research (4)** Lecture, three hours. Examination of particular planning/policy subfield (e.g., economic development, environmental planning, housing and community development, international planning and development, land use, or urban design) in some depth. Specific topic area rotates depending on instructor. May be repeated for credit with topic change. P/NP or letter grading.

**130. Fundamentals of Urban and Regional Economics (4)** Lecture, three hours. Preparation: one introduction to microeconomics course. Most U.S. population lives and works in urbanized areas, and world's population is becoming more urbanized with each passing decade. National, state, and local governments are engaged in managing, planning, policymaking, and governance in urban context. Ultimate efficacy of those public activities can be enhanced by understanding of economic forces acting on urban areas. Basic concepts related to location choice, agglomeration effects, economies of scale, and specialization by cities and transportation. P/NP or letter grading.

**CM137. Southern California Regional Economy (4)** (Same as Labor Studies M180.) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Concurrently scheduled with course C237C. Letter grading.

**140. Issues in Latina/Latino Poverty: Mexican and Central American Voices from Los Angeles (4)** (Same as Chicana/o and Central American Studies M121 and Labor Studies M121.) Lecture, four hours. Examination of key issues (work, housing, and neighborhoods) in urban poverty, with particular focus on Mexican and Central American immigrant populations in Los Angeles. Exploration of major theoretical models that explain urban poverty and application of them in comparative context while exploring differences between Mexican and Central American immigrants. Social conditions and forces that help us understand lives of poor people in comparative context while looking at differences between two major Latino-origin populations in Los Angeles. Critical analysis of new forms of urban poverty in contemporary American society. Letter grading.

**141. Planning with Minority Communities (4)** Lecture, three hours. Overview of planning history, theory, and contemporary issues that affect low-income communities, communities of color, and underserved neighborhoods, particularly in Los Angeles area. Field of planning offers distinct perspectives and opportunities for improving vulnerable communities. Topics range from discussion of intersection between race and income, critical race theory, community development, residential segregation, spatial mismatch, and environmental justice to social justice. P/NP or letter grading.

**150. Transportation Geography (4)** (Same as Geography M153.) Lecture, three hours. Designed for juniors/seniors. Study of geographical aspects of transportation, with focus on characteristics and functions of various modes and on complexities of intra-urban transport. P/NP or letter grading.

**CM151. Parking and City (4)** (Same as Public Affairs M153.) Lecture, three hours. Requisite: Economics 1 or 11 or Public Affairs 40. Parking is misunderstood link between transportation and land use. Transportation engineers typically assume that free parking simply is there at end of most trips, while urban planners treat parking as transportation issue that engineers must study. No profession is intellectually responsible for parking, and everyone seems to assume that someone else is doing hard thinking. Mistakes in planning for parking help to explain why planning for transportation and land use has in many ways gone slowly, subtly, incrementally wrong. Study of theory and practice of planning for parking and examination of how planning for parking in U.S. has become planning for free parking. Exploration of new ways to improve planning for parking, transportation, and land use. Concurrently scheduled with C251. Letter grading.

**CM157. Built Environment and Health (4)** (Same as Public Affairs M157.) Lecture, three hours. Exploration of important linkages between urban-built environment and public-health outcomes using ecological, urban planning, and community-based lenses through theory and series of case studies. Knowledge of these linkages is used to propose ecological solutions to issues at nexus of built environment and public health. May be concurrently scheduled with course C285. Letter grading.

**160. Environmental Politics and Governance (4)** (Same as Environment M164.) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

**161. Urban Sustainability (4)** (Same as Public Affairs M160.) Lecture, three hours. In 21st century, majority of Earth's population now lives in urban areas and virtually no part of globe remains untouched by human influence. Cities constitute crucibles of most pressing social and environmental challenges but are also potential centers of innovation for addressing those challenges. Examination of theory and practice from geography and related fields to understand many articulations of urban sustainability and how it might be achieved. Letter grading.

**164A. Documentary Production for Social Change: Mobility in Los Angeles (5)** (Same as Disability Studies M164A.) Seminar, three hours; fieldwork, two hours. Exploration of documentary filmmaking as catalyst for social change, using daily commute in Los Angeles as case study. Introduction to issues of race, ethnicity, gender, disability, and class on experiences of commuting, access to public transportation, and car-based versus alternative (bike and pedestrian) forms of commuting. Exposure to observational, interview-based, and participatory documentary shooting and editing techniques, as well as social marketing strategies that are vital to documentary production and distribution. Letter grading.

**165. Environmentalism: Past, Present, and Future (4)** (Same as Environment M125 and Geography M125.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contempo-



rary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

**CM166. Global Environment and Development: Problems and Issues (4)** (Same as Geography M127.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. Concurrently scheduled with course C266. P/NP or letter grading.

**167. Environmental Justice through Multiple Lenses (4)** (Same as Environment M167 and Public Affairs M161.) Lecture, three hours. Examination of intersection between race, economic class, and environment in U.S., with focus on issues related to social justice. Because environmental inequality is highly complex phenomenon, multidisciplinary and multipopulation approach taken, using alternative ways of understanding, interpreting, and taking action. P/NP or letter grading.

**168. Politics of Water (4)** (Same as Public Affairs M159.) Lecture, three hours; discussion, one hour. Access to safe and sustainable water provision is major challenge for governments. Examination of political, economic, and social dimensions of water provision in Asia, Africa, Latin America, and U.S. Key issues include water and state building, market reforms and globalization, social mobilization, and citizen demand making strategies, role of crisis in citizen claims making. Letter grading.

**171. Planning Issues in Latina/Latino Communities: Preserving and Strengthening Community Assets in Mexican and Salvadoran Los Angeles (4)** (Same as Chicana/o and Central American Studies M122 and Labor Studies M122.) Lecture, four hours. How community and economic development interact, role of assets in community development, and unique synergies and pitfalls that enable or disable communities from developing to their potential. How to strengthen and how to preserve community resources in Pico-Union neighborhood in Los Angeles. Research entails historical analysis, reviews, interviews, electronic asset mapping, web-based data processing and analysis, oral and written reports, and cyber-based research. Letter grading.

**CM172. Labor and Economic Development (4)** (Same as Labor Studies M171.) Lecture, three hours. Exploration of economic development and identification of ways that labor and labor unions directly and indirectly influence and shape economic development. Wide range of roles that labor plays, and could play, in promoting and supporting economic development for all. Concurrently scheduled with course C271B. Letter grading.

**175. Women and Cities (4)** (Same as Gender Studies M175.) Lecture, three hours. Limited to juniors/seniors. Examination of relationship between women and cities: (1) how cities have affected women's opportunities for economic and social equality, (2) women's contributions to development of U.S. cities, and (3) contemporary strategies and efforts to create urban environments that reflect women's needs and interests. P/NP or letter grading.

**C184. Looking at Los Angeles (4)** Lecture, three hours. Introduction to history and physical form of Los Angeles, with emphasis on understanding social, economic, and political issues in development of Los Angeles. Concurrently scheduled with course C284. Letter grading.

**185XP. Community-Based Research in Planning (4)** (Formerly numbered 185SL.) Seminar, one hour; fieldwork, three hours. Preparation: at least four Urban and Regional Studies minor courses, of which at least one should be related to subject area of service learning setting. Limited to junior/senior minor students. Designed to serve as complement to service learning requirement and may be used to fulfill capstone requirement for minor. Students are matched to public, private, or nonprofit agency through Center for Community Learning and must complete minimum of 30 hours of work. Duties and responsibilities to be set by students and sponsoring organizations. Readings to be determined in consultation with instructor. P/NP or letter grading.

**187. Latino Metropolis: Architecture and Urbanism in Americas (4)** (Same as Chicana/o and Central American Studies M187 and History M151E.) Lecture, four hours. Introduction to history of architecture and urbanism in Americas, from fabled cities of Aztec empire to barrios of 21st-century Los Angeles and Miami. Emphasis on role of cities in Latina/Latino experience and uses of architecture and city planning to forge new social identities rooted in historical experiences of conquest, immigration, nationalization, and revolution. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty

mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors and departmental honors programs. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**195. Community Internships in Urban Planning (4)** Tutorial, 12 hours. Limited to junior/senior Urban and Regional Studies minors. Internship in supervised setting in community agency or urban planning setting. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research in Urban Planning (2 to 8)** Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**M201. Theories of Architecture (4)** (Same as Architecture and Urban Design M201.) Lecture, three hours. Exploration of conceptual and historical structures that shape current issues in architectural theory. Readings in primary texts serve as framework for understanding nature of speculative inquiry in architectural context. Letter grading.

**202. Land Use (4, 6)** Lecture, three or four hours. Exploration of 21st-century land-use public controls, private practice, and litigation in California from basic planning, zoning, subdivision controls, and official mapping to regional growth management, sustainability, and environmentally sensitive land protection. Concurrently scheduled with Law 286. Letter grading.

**202A. Land Use (3, 4)** Lecture, three hours. Course 202A is enforced requisite to 202B. Exploration of 21st-century land-use public controls, private practice, and litigation in California from basic planning, zoning, subdivision controls, and official mapping to regional growth management, sustainability, and environmentally sensitive land protection. Concurrently scheduled with Law 286. In Progress grading (credit to be given only on completion of course 202B).

**202B. Land Use (1, 2)** Lecture, three hours. Enforced requisite: course 202A. Continuation of course 202A. Exploration of 21st-century land-use public controls, private practice, and litigation in California from basic planning, zoning, subdivision controls, and official mapping to regional growth management, sustainability, and environmentally sensitive land protection. Concurrently scheduled with Law 286. S/U or letter grading.

**203. Housing Segregation, Housing Discrimination, and Evolution of Public Policy (1 to 8)** (Same as Law M526.) Seminar, three hours; two field trips. Consideration of selected aspects of housing law and policy, including current federal and state housing subsidies; remedies of housing consumers; impacts of market discrimination against children, racial minorities, and women; and local governmental laws influencing cost and supply, such as antispeculation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered. Letter grading.

**203A. Seminar: Housing Segregation, Housing Discrimination, and Evolution of Public Policy (1 to 8)** (Same as Law M526.) Seminar, three hours; two field trips. Course M203A is enforced requisite to 203B. Consideration of selected aspects of housing law and policy, including current federal and state housing subsidies; remedies of housing consumers; impacts of market discrimination

against children, racial minorities, and women; and local governmental laws influencing cost and supply, such as antispeculation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered. In Progress grading (credit to be given only on completion of course 203B).

**203B. Seminar: Housing Segregation, Housing Discrimination, and Evolution of Public Policy (1 to 8)** Seminar, three hours; two field trips. Enforced prerequisite: course M203A. Continuation of course M203A. Consideration of selected aspects of housing law and policy, including current federal and state housing subsidies; remedies of housing consumers; impacts of market discrimination against children, racial minorities, and women; and local governmental laws influencing cost and supply, such as antispeculation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered. Letter grading.

**204. Research Design and Methods for Social Policy (4)** (Same as Public Policy M218.) Lecture, three hours; outside study, nine hours. Limited to graduate students. How to become more sophisticated consumers and producers of qualitative and quantitative policy research. In first half of course, formal principles of research design; in second half, various data collection methods, including ethnography, interviewing, and survey design. Letter grading.

**205A. MURP Comprehensive Examination: Applied Planning Research Project I (4)** Seminar, three hours. Required of all second-year students completing applied planning research project MURP comprehensive examination capstone option. Guides students through identifying topics, selecting clients, developing scope of work and memorandum of understanding with clients, completing research design and literature review portions of applied planning research project, and collecting data. Letter grading.

**205B. MURP Comprehensive Examination: Applied Planning Research Project II (4)** Seminar, three hours; discussion, one hour. Required of all second-year students completing applied planning research project MURP comprehensive examination capstone option. Guides students through completion of data collection, analysis, findings, conclusions, and recommendations portions of applied planning research project. Preparation of executive summary and poster synthesizing their work. Letter grading.

**206. Introduction to Geographic Information Systems (4)** Lecture, one hour; laboratory, two hours. Practice-oriented study using Esri/ArcGIS. Survey and overview of spatial analysis techniques and training on data analysis, management, and visualization. Students are guided through series of exercises and assignments to build higher levels of spatial understanding and experience. Use of laboratory exercises, book exercises, and project to help illuminate principles and teach useful skills. Discussion of three major themes: spatial analysis, data management, design and visualization. Letter grading.

**207. Applied Microeconomics for Urban Planning (4)** Lecture, three hours; laboratory, 90 minutes. Preparation: passing score on microeconomics examination given first day of class. Practical use of economics in analyzing public resource allocation problems. Topics include review of marginal analysis, difference between equity and efficiency, public goods and free rider problem, environmental pricing, public service pricing, and conflicts between individual and collective rationality. Letter grading.

**208A. Introduction to Luskin PhD Research (4)** (Formerly numbered 208A.) (Same as Social Welfare M249A.) Lecture, one hour; discussion, two hours. Required of first-year PhD students. Introduction to design and execution of public affairs research; exploration of subfields of public affairs scholarship and approaches to research on contemporary topics in social welfare and urban planning. Preparation and filing of PhD program of study. Letter grading.

**208B. Logic of Inference and Causation (4)** (Formerly numbered 208B.) (Same as Social Welfare M249C.) Seminar, three hours. Requisites: courses M208A, M208D. Required in first or second year of PhD program. Development of researchable hypotheses and accompanying research design strategies, understanding of threats to validity, review of critiques of traditional methods and of alternative approaches to scholarship. Letter grading.

**208C. Applied Research Design: Dissertation and Thesis Proposal (4)** (Formerly numbered 208C.) (Same as Social Welfare M258.) Seminar, three hours. Required of all PhD students who have passed their field examinations but have not yet advanced to candidacy and all MURP students completing their thesis capstone option. Advanced research design course that guides students in selecting problem/question to study, reviewing previous research on problem/question, framing specific research questions/hypotheses, and selecting methodology and plan for testing hypotheses. May be repeated for credit. S/U or letter grading.

**208D. Introduction to Qualitative Research (4)** (Same as Social Welfare M249B.) Lecture, three hours; outside study, nine hours. Requisite: course M208A. Required in first or second year of PhD program. Introduction to philosophy, theories, logic, design, and practice of qualitative research by studying its varied methodologies. Letter grading.

**209. Special Topics in Planning Theory (4)** Lecture, three hours. Topics in planning theory selected by faculty members. May be repeated for credit. S/U or letter grading.

**210A. Special Topics in Public Affairs (4)** (Same as Public Policy M291C and Social Welfare M203X.) Seminar, three hours; outside study, nine hours. Advanced seminar on emerging issues across public policy, social welfare, and urban planning. May be repeated for credit. S/U or letter grading.

**210B. Comparative Perspective on States, Markets, and Civil Society (4)** (Same as Social Welfare M290X and Urban Planning M210B.) Lecture, two and one half hours. Governance is about solving and managing societal problems, such as climate change, poverty, migration, security, mobility, pollution, or trade relations. Contemporary governance is complex set of laws, rules, and regulations involving rights and responsibilities of three institutional complexes of modern societies (state, market, and civil society), interests that guide them, and legitimacy and resources they command. Actors often reach across systemic, jurisdictional, and national boundaries; their relationships can be cooperative, neutral, or fraught with conflict, and governance outcomes can vary significantly. These dynamics involve fundamental challenges and, consequently, require significant governance readiness. Lectures, debates, in-class exercises, and student presentations. Exploration of several issues in more detail, e.g., types of state capacities, democracy, crisis management, governance innovation, and specific policy fields such as infrastructure or global finance. S/U or letter grading.

**211. Law and Quality of Urban Life (4)** Lecture, three hours. Introduction to law as urban system, directed primarily toward those interested in intersection of law and policy: broad array of urban issues examined, as is law's role as partial cause and cure of urban problems. Examination of law as changing process rather than collection of principles, so that students develop facility to interact with law and lawyers in positive and forceful manner. S/U or letter grading.

**212. International/Comparative Planning Workshop. (2, 4)** Seminar, three hours; field trips, five to 10 days. Topics of planning and policy in various international or domestic sites. Topics may include urban design, urban development, urban governance, land use, environmental issues, transportation, infrastructure planning, housing development, community development, and/or physical planning. May be repeated for credit. S/U or letter grading.

**213. Urban Data Science (4)** Lecture, three hours. Preparation: basic Python programming experience or introductory Python course. New data sources are potential goldmine for urban planners and policy makers. But sometimes they are large, messy, or awkward to access, and often they are all of these things. Development of skills in scraping, processing, and managing urban data, and using tools such as natural language processing, geospatial analysis, and machine learning. Use of examples from transit, housing, and equity planning, and building of competence in open-source tools and languages such as Python and SQL. Consideration also of limits to data science, and biases and pitfalls that big data can entail. Letter grading.

**214. Neighborhood Analysis (4)** Lecture, two hours; laboratory, two hours. Experience with GIS and statistical software useful but not necessary. Methods-oriented studio course, with focus on developing data and analytical skills required to profile and analyze neighborhoods. Working in teams students develop quantitative neighborhood profiles that can be used in community planning and at other geographical levels (e.g., cities, counties, and regions). Students gain professional experience and produce product that benefits larger community. Data management and analysis, including accessing, cleaning, and presenting data. Letter grading.

**215. Spatial Statistics (4)** (Same as Geography M205 and Statistics M222.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

**216. Current Issues in Food Studies (4)** (Same as Community Health Sciences M217.) Seminar, three hours. Limited to Food Studies Graduate Certificate Program students. Food is complex subject given that production, procurement, preparation, consumption, and exchange of edible matter is biologically vital to human growth, development, and function and critical to many aspects of society and culture. Food studies is growing cross-disciplinary field of research, teaching, and advocacy that encompasses and draws from cultural anthropology and geography, food law and policy, urban planning, sociology, literature, history, public health, nutrition, environmental

science, molecular and cell biology, science and technology studies (STS), agronomy, and other disciplines. Survey of some of these wide-ranging topics and disciplines that define food studies. Letter grading.

**217A. Comprehensive Planning Project (4)** Seminar, three hours. Designed for second-year students. Comprehensive project brings together students of varying backgrounds and interests in joint solution of urban planning problem. Each project spans two terms. Successful completion of project meets requirements of Comprehensive Examination Plan A of MA program. S/U grading.

**217B. Comprehensive Planning Project (4)** Seminar, three hours. Designed for second-year students. Comprehensive project brings together students of varying backgrounds and interests in joint solution of urban planning problem. Each project spans two terms. Successful completion of project meets requirements of Comprehensive Examination Plan A of MA program. S/U grading.

**218A. Graphics and Urban Information (4)** Lecture, two hours; studio, one hour. Presentation of basic graphic methods and tools for conceptualization, analysis, and documentation of built environment. Development of fundamental skills of graphic ideation and communication. Letter grading.

**218B. Advanced Visual Communication (4)** Lecture, 90 minutes; computer laboratory. Development of advanced graphic design and oral communication skills, and strengthening of writing abilities through lectures, computer laboratories, and critiques. Students apply visual communication skills through lens of professional planning practice, assuming role of consultant to prepare presentations and plans for client. Follows typical urban planning project from start to finish, and exposes students to professional consulting practice through quick, fast-paced project. Letter grading.

**219. Special Topics in Built Environment (4)** Lecture, three hours. Topics in built environment selected by faculty members. May be repeated for credit. S/U or letter grading.

**220A. Quantitative Analysis in Urban Planning I (4)** Lecture, three hours; laboratory, 90 minutes. Preparation: passing score on basic mathematics proficiency examination given first day of class. Introduction to mathematical and statistical concepts and methods with applications in urban planning. Review of basic mathematical concepts fundamental to planning methods; linear and nonlinear functions focusing on growth curves and mathematics of finance; data measurement and display; descriptive statistics and probability. Introduction to use of computer as tool in analysis of planning-related data. Letter grading.

**220B. Quantitative Analysis in Urban Planning II (4)** Lecture, three hours; laboratory, 90 minutes. Requisite: course 220A or equivalent as demonstrated by passing score on mathematics proficiency examination given first day of course 220A. Introduction to concepts of statistical inference and modeling, with emphasis on urban planning applications. Topics include sampling, hypothesis testing, analysis of variance, correlation, and simple and multiple regression. Use of computer as tool in statistical analysis and modeling. Letter grading.

**221. Introduction to Geographic Information Systems and Spatial Data Science (4)** (Formerly numbered 206A.) Lecture, one hour; laboratory, two hours. Designed to familiarize students with use of geographic data in public policy, urban planning, and related practice, and develop skill base for community practice that provides each student with tools necessary to organize and plan effectively for political, economic, and social justice in our communities. Students learn how to use geographic information systems (GIS) to inform practice, advocacy, and policy work. Letter grading.

**222A. Introduction to Planning History and Theory (4)** Lecture, three hours; discussion, 90 minutes. Required of first-year MURP students, typically in Fall Quarter; required of first-year PhD students who have not completed comparable graduate course in planning history and theory. Exploration of planning thought and practice over time, leading authors and key issues in field of planning, traditional and insurgent histories of planning, and alternative approaches to planning for multiple and pluralistic publics. Letter grading.

**222B. Advanced Planning Theory: Production of Space (4)** Lecture, three hours. Required of first-year PhD students. Major ideas and theories of planning that have influenced its development from early-19th century to present. Letter grading.

**222C. Advanced Planning Theory: Social Life and Difference (4)** Lecture, three hours. Required of first-year PhD students. Major ideas and theories of planning that have influenced its development from early-19th century to present. Letter grading.

**223. Critical Race Studies (4)** Lecture, three hours. Focus on foundation of critical race theory (CRT), and other theoretical works focusing on racism and racialization, as applied to public policy, social welfare, and urban planning. Review of causes and symptoms of structural racism and social/racial hierar-

chies as they influence, and are influenced by, these three fields. Students are expected to be prepared and ready to engage in dialog by completing readings, developing questions, reflecting on material, and keeping up with current events related to course topics. Letter grading.

**224. Racial Justice and Planning (4)** Lecture, three hours. Addresses problem of advancing racial justice in and through planning research and practice. What key theories that explain racism and justice in planning are; how histories of unjust planning thought and practice have contributed to entrenched racial inequalities in and around cities; what some promising practices for confronting and addressing historical and present-day racial injustice are; and how intersectional understanding and approach can be embraced by planners taking on these issues in highly unequal, politically fractured, and charged urban and regional landscapes. Addresses these questions of planning through modules examining topics such as abolition and policing; climate and environmental justice; housing and infrastructure; spatial planning and urban design; education reform; immigrant incorporation; and public health. Letter grading.

**225. Planning in Black Communities (4)** Lecture, three hours. Use one of many modes of Black radical analysis to critique hidden assumptions, pitfalls, and interests, revealed in racialized histories of such policy interventions and their attendant ideological justifications. Letter grading.

**228. Visual Communication Skills (2)** Five-week course. Lecture, two hours; laboratory, one hour. Greater emphasis on graphic presentation and visual communication to educate stakeholders, advocate for change, and encourage participation in planning process in recent years, in both public and private sector. Visual communication requires analytic skills and strategic thinking, strong foundation in design theory, and technical skills in computer programs. Introduction to Adobe InDesign and Illustrator and foundation in design theory and communication. How to use graphic design and presentation programs to create attractive and powerful planning materials and reports, design principles to communicate ideas in clear, succinct, and engaging manner, and when and how to use graphic materials to support verbal presentations or written reports. Letter grading.

**229. Special Topics in Planning Methods (4)** Lecture, three hours. Topics in planning methodology selected by faculty members. May be repeated for credit. S/U or letter grading.

**230. Introduction to Regional Planning (4)** (Same as Public Policy M241.) Lecture, three hours. Critical and historical survey of evolution of regional planning theory and practice, with particular emphasis on relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, territorial community, and social production of space. Letter grading.

**231. Global Public Affairs: Governing in Interconnected World (4)** (Same as Public Policy M228B and Social Welfare M215.) Lecture, three hours; outside work, nine hours. Conceptually, focus on interplay between three major institutional complexes of modern, globalizing societies and organizations that operate within them: state, market, and civil society. Study moves between abstract theory and concrete examples, offers sense of where these institutions and organizations have come from, and helps chart their present trajectories. From perspective of governance, assessment of roles and configurations of institutions and organizations to address today's challenges. S/U or letter grading.

**232. Disaster Management and Response (4)** Lecture, three hours. Through readings and presentations, examination of disaster management and response in both U.S. and developing countries. Exploration of how disaster impacts and risk reduction both relate to economic, vulnerability, and political factors, in addition to acts of nature. Structured to allow students to focus on distinct disaster contexts and themes as set out in reading and weekly sessions. Letter grading.

**233. Urban Politics in the Global South (4)** (Formerly numbered C233.) Lecture, three hours. Examination of urban politics in Africa, Asia, and Latin America, with focus on comparative analysis. Overall focus on institutions, government, and politics, and how these shape urban life in the global south. Topics may include decentralization; public service provision; rule of law and urban violence; participatory institutions; mass mobilization; local campaigns and elections; environmental issues; transportation; housing; and race, ethnicity, and representation. Letter grading.

**234A. Development Theory (4)** (Same as Geography M229A.) Lecture, three hours. Review of basic literature and schools of thought on development theory through analysis of impact of mercantilism, colonialism, capitalism, and socialism on various urban and rural social and economic structures in Third World. Presentation, through evaluation of theoretical writings and case studies, of complexity and diversity of developing countries. Emphasis on

linkages between policy and rural and urban impacts. Gives students important background for courses M234B, M234C, and many other planning courses addressing Third World issues. Letter grading.

**234B. Ecological Issues in Planning (4)** (Same as Geography M229B.) Lecture, three hours. Recommended preparation: course M265. Science and politics of modern environmentalism and planning in light of transformations inherent in global change, including how to address these questions in ways that go beyond green consumerism and bifurcation of wild, ecological, and human environments. American environmentalism has become dominant model for many conservation practices. Informed by Muirist model of idea of untrammeled nature with people-less set-asides for spiritual and scientific contemplation of nature; this approach used in environmental policy and as key idea in conservation and fragment biology. At opposite end is environmental planning devoted to infrastructure in hyper-human habitats (cities). Exploration of these competing models and many reasons to be skeptical of both in 21st century. Letter grading.

**234C. Resource-Based Development (4)** (Same as Geography M229C.) Lecture, three hours. Recommended preparation: course M234A. Some major issues associated with development of specific natural resources. Topics include nature of particular resource (or region associated with it), its previous management, involvement of state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

**235A. Urbanization in Developing World (4)** Lecture, three hours. Course 235A is not requisite to 235B. Questions of urbanization and planning in low- and middle-income countries. Case studies from Latin America, Africa, and Asia. Lectures, student presentations, and policy debates. Letter grading.

**235B. Civil Society, Nongovernmental Organizations, and Social Movements in Developing World (4)** Lecture, three hours. Questions of civil society, nongovernmental organizations (NGOs), and social movements in low- and middle-income countries. Case studies from Latin America, Africa, and Asia. Lectures, student presentations, and policy debates. Letter grading.

**236A. Theories of Regional Economic Development I (4)** (Same as Geography M230A and Public Policy M240.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

**236B. Globalization and Regional Development (4)** (Same as Geography M230B.) Lecture, three hours. Requisite: course M236A. Application of theories of regional economic development, location, and trade learned in course M236A to contemporary process known as globalization. Examination of nature and effects of globalization on development, employment, and social structure, along with implications for policy. Letter grading.

**236C. Advanced Workshop on Regions in World Economy (4)** Lecture, three hours. Requisite: course M236B. Advanced workshop on regional development examining changes in organization of production systems, their geographies, and processes that affect regional performance in globalized environment. Letter grading.

**237A. Sectoral Analysis (4)** Lecture, three hours; laboratory, one hour. Introduction to methods and procedures of sectoral investigation as applied to regions, industries, companies, and their labor forces. Current theories and conceptions of industrial structure and industrial change. Investigation of characteristics and trends of industry subsectors in Los Angeles resulting in industry profile that can serve as aid to planning and shaping economic development. Letter grading.

**237B. Urban and Regional Economic Development Applications (4)** Lecture, three hours. Survey and analysis of economic development strategies in U.S. Because economic development strategies seek to modify or shape existing conditions, focus on how policies attempt to harness dynamics associated with new forms of industrialization, intensified global competition, and interrelationships among capital, labor, and state. Letter grading.

**C237C. Southern California Regional Economy (4)** Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Concurrently scheduled with course CM137. Letter grading.

**238. Global Labor Markets (4)** Lecture, three hours. Consideration of labor-related programs, policy, and strategy in international and comparative context. Review of major approaches to improving quality, quantity, and access to jobs, including training, regulation, migration policy, organizing strategies, and social safety net. Global in scope, with particular reference to countries of global south. Letter grading.

**239. Special Topics in Regional and International Development (4)** Seminar, three hours. Topics in urban and regional development selected by faculty members. May be repeated for credit. S/U or letter grading.

**240. Local Government. (2 to 6)** (Same as Law M285.) Lecture, three hours. Analysis of structure and function of local, regional, and state government in historical and institutional context: organization, finance, intergovernmental relations, role of judiciary, public services, lawmaking, citizen participation through initiatives and referenda, and government tort liability. Letter grading.

**240A. Local Government (4)** Lecture, three hours. Analysis of structure and function of local, regional, and state government in historical and institutional context: organization, finance, intergovernmental relations, role of judiciary, public services, lawmaking, citizen participation through initiatives and referenda, and government tort liability. Concurrently scheduled with Law 285. In Progress grading (credit to be given only on completion of course 240B).

**240B. Local Government (2)** Lecture, three hours. Analysis of structure and function of local, regional, and state government in historical and institutional context: organization, finance, intergovernmental relations, role of judiciary, public services, lawmaking, citizen participation through initiatives and referenda, and government tort liability. Concurrently scheduled with Law 285. Letter grading.

**241. Policing through Bureaucracy: Encounters with City and State (4)** Lecture, three hours. Every day, people encounter state power through their contact with bureaucracies. Bureaucracies administer and regulate many aspects of our lives, including education, housing, social benefits, and mobility. Examination of role of bureaucracies in emergence of, persistence of, and experience of social inequality. Exploration of dilemmas that bureaucrats face as they do their jobs, and experiences of people who interact with bureaucrats either voluntarily or involuntarily. Consideration of how peoples' experiences of bureaucracies are stratified by race and social class, and reflection on how experiences with bureaucracies convey messages about race, citizenship, and belonging. Letter grading.

**242. Poverty and Inequality (4)** Lecture, three hours. Examination of relationship between urbanization and spatial inequality in U.S.—spatial dynamics of urban growth, levels and causes of spatial inequality, and implications of spatial inequality for low-income communities. Topics include concentrated poverty, residential segregation, immigrant neighborhoods, spatial disparities in access to opportunities, housing mobility, neighborhood health and safety, urban infrastructure, and political cohesion and participation. Analysis of role of policies in promoting and/or reducing spatial inequities. Letter grading.

**243. Urban Futures: Space, Ecology, Society (4)** Lecture, three hours. Urban social and ecological change are intertwined and coproduced. Inquiry into how we can better understand and intervene in this critical relationship, in global context of technological promise, extensive urbanization, ecological crises, and increasingly isolationist and splintered societies. Examination of big problems, and big ideas and big plans that may be necessary to address them as well as what enables large-scale urban environmental projects to be conceived and implemented. Letter grading.

**244. Urban Poverty and Planning (4)** Lecture, three hours. Examination of determinants of urban poverty, with emphasis on poverty in U.S. and on geographical dimensions of poverty and planning interventions that contribute to poverty reduction. Topics include relationship between poverty and human and social capital, demographic change, low-wage labor market, spatial concentration of poor, residential segregation, and social policy. Letter grading.

**245. Urban Public Finance (4)** Lecture, three hours. Requisites: courses 207, 220A. Theory and practice of urban public finance, with emphasis on methods used to fund public infrastructure. Topics include fiscal impact analysis of real estate development, effects of taxes on land-use decisions, benefit assessments to finance neighborhood public investment, private and intergovernmental contracting as method of supplying urban public services, tax increment finance for urban redevelopment, and municipal bond market. S/U or letter grading.

**246. Poverty, Poor, and Welfare Reform (4)** (Same as Public Policy M214 and Social Welfare M290L.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

**247. Planning for Multiple Publics (4)** Lecture, three hours. Exploration of planning needs of various social groups in urban settings, using existing literature and research studies to determine appropriate mechanisms of planning for multiple publics. Analysis of communities in Los Angeles metropolitan area to gain insights into practical, theoretical, and methodological problems of planning for multiple publics. Generally taken in first year. S/U or letter grading.

**249. Special Topics in Transportation Policy and Planning (4)** Lecture, three hours. Topics in transportation policy and planning selected by faculty members. May be repeated for credit. S/U or letter grading.

**250. Transportation and Land Use: Urban Form (4)** (Same as Public Policy M220.) Lecture, three hours. Historical evolution of urban form and transportation systems, intrametropolitan location theory, recent trends in urban form, spatial mismatch hypothesis, jobs/housing balance, transportation in strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

**C251. Parking and City (4)** Lecture, three hours. Requisite: course 207. Parking is misunderstood link between transportation and land use. Transportation engineers typically assume that free parking simply is there at end of most trips, while urban planners treat parking as transportation issue that engineers must study. No profession is intellectually responsible for parking, and everyone seems to assume that someone else is doing hard thinking. Mistakes in planning for parking help to explain why planning for transportation and land use has in many ways gone slowly, subtly, incrementally wrong. Study of theory and practice of planning for parking and examination of how planning for parking in U.S. has become planning for free parking. Exploration of new ways to improve planning for parking, transportation, and land use. Concurrently scheduled with course CM151. Letter grading.

**252. Transportation and Land Use: Transportation and Urban Design Studio (4)** Studio, three hours. Students of different backgrounds and interests collaboratively and individually analyze and propose solutions for actual transportation planning and urban design problem. Course simulates real-world professional planning project of type that students might be assigned if working for consulting firms or public agencies. Students acquire ability to collect and synthesize evidence typically marshaled by transportation planning and urban design professionals, urban and site analysis capabilities, design and physical planning skills, and data analysis and design presentation and re-presentation abilities. Letter grading.

**253. Travel Behavior Analysis (4)** (Same as Civil Engineering M287 and Public Policy M221.) Lecture, three hours. Requisites: courses 207 and 220B, or Public Policy 201 or M201A, and 203. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation, trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

**254. Bicycle and Pedestrian Planning (4)** Lecture, three hours. Walking and bicycling are essential components of sustainable transportation systems. In response to growing concerns about access, safety, public health, equity, climate change, and community sustainability issues, many government agencies and private developers are planning to improve pedestrian and bicycle transportation. Exploration of field's relationship to land use and transportation planning, public health, and environment. Detailed knowledge provided of various bicycle and pedestrian facilities and their appropriate contexts. Examination of bicycle and pedestrian planning in context of overall street design. Essential components of bicycle and pedestrian planning, including policies, programs, funding, and advocacy. In-class exercises and out-of-class planning projects. Letter grading.

**255. Shared Mobility Policy and Planning (4)** (Same as Public Policy M244.) Lecture, three hours. Introduction to planning, analysis, and management of shared mobility systems, with particular focus on public transit. Overview of shared mobility policy and planning context; introduction to transportation planning and project evaluation processes; high-speed rail and airports and aviation; public transit policy and planning, including performance evaluation and route planning; taxis and ADA paratransit, ride-hailing, car-, bike-, and scooter-share; implications of vehicle automation for shared mobility in the years ahead. Letter grading.

**256. Transportation Economics, Finance, and Policy (4)** (Same as Public Policy M222.) Lecture, three hours. Overview of transportation finance and economics; concepts of efficiency and equity in transportation finance; historical evolution of highway and transit finance; current issues in highway finance; private participation in road finance, toll roads, road costs and cost allocation, truck charges, congestion pricing; current issues in transit finance; transit fare and subsidy policies, contracting and privatization of transit services. Letter grading.

**257. Transportation and Economic Outcomes (4)** Lecture, three hours. Examination of equity issues related to urban transportation, with focus on complex relationships among urban spatial structure, transportation (travel patterns and transportation investments), and economic outcomes. Role of transportation in improving economic outcomes for low-income and minority households and communities. Letter grading.

**258. Transportation and Climate Change (4)** (Same as Public Policy M223.) Lecture, three hours. How to reduce greenhouse gas emissions from transportation. Critical analysis of policies to improve fuel economy, promote electric vehicles, and reduce vehicle travel. History and legal frameworks of environmental regulation. Analytical methods to quantify carbon emissions and

estimate emission reductions. Focus on climate change, but consideration of other environmental consequences of transportation, from air pollution to stormwater runoff. Letter grading.

**260. Environmental Politics and Governance (4)** Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

**260A. Environmental Assessment: Urban Design (4)** Lecture, three hours. Introduction to methods of evaluating environmental impacts of existing and proposed projects. Intended for planners and environmental professionals working in climate-impacted future. Letter grading.

**260B. Green Urban Studio: Designing Living Neighborhoods (4)** Studio, three hours. Students gain detailed knowledge of both established and emerging performance-based methods for addressing issues of energy, water, waste, food, transportation, habitat, biomimicry, and local economies at district or neighborhood scale. Letter grading.

**261. Land-Use Planning: Processes, Critiques, and Innovations (4)** Lecture, three hours. Understanding of techniques, processes, strategies, and dilemmas of land-use planning. Despite strong criticisms and demonstrated shortcomings, land-use control remains integral part of planning practice. How does land-use control work? How has it evolved? What are problems with traditional land-use control mechanisms? How well do innovations in land-use planning address criticisms? What is role of land-use planning in good society? S/U or letter grading.

**262. Urban Environmental Problems: Water Resources (4)** Lecture, three hours. Water access affects quality of life and livelihoods both in California and across low and middle income countries. Examination of similarities and distinctions between relevant water access issues in both contexts. To date, water resources planning has been devoted almost exclusively to engineering and technical capacity of service delivery systems. Focus here on social, political, and economic drivers of access, inequality of access, and related conflicts. Water resource governance issues primarily considered at subnational, city, and household scales. S/U or letter grading.

**264. Environmental Law. (4, 6)** Lecture, three or four hours. Examination of field of environmental law through analysis of various legal issues and public policy: legal consequences of public decision-making strategies and allocation of primary responsibility for various environmental decisions. Focus on air pollution and Clean Air Act as means of illustrating policy issues underlying field. Concurrently scheduled with Law 290. S/U or letter grading.

**264A. Environmental Law. (3, 4)** Lecture, three hours. Course 264A is enforced requisite to 264B. Examination of field of environmental law through analysis of various legal issues and public policy: legal consequences of public decision-making strategies and allocation of primary responsibility for various environmental decisions. Focus on air pollution and Clean Air Act as means of illustrating policy issues underlying field. Concurrently scheduled with Law 290. In Progress grading (credit to be given only on completion of course 264B).

**264B. Environmental Law. (1, 2)** Lecture, three hours. Enforced requisite: course 264A. Continuation of course 264A. Examination of field of environmental law through analysis of various legal issues and public policy: legal consequences of public decision-making strategies and allocation of primary responsibility for various environmental decisions. Focus on air pollution and Clean Air Act as means of illustrating policy issues underlying field. Concurrently scheduled with Law 290. S/U or letter grading.

**265. Environmentalisms: Climate Dimensions and Politics Past, Present, Future (4)** (Same as Geography M265.) Lecture, three hours; discussion, one hour. Review of environmental theories and their practices in dynamic U.S. and international contexts. Issues of climate change, scenario planning, and matrix ecology and its implications in both urban and rural settings. Exploration of problematics of increasing internationalization (or international implications) of environmental practices as part of both green and black economies. What does integrated environmental planning look like in this century? Letter grading.

**265B. Urban Environments and Socioecologies (4)** Lecture, three hours. Reading-intensive exploration of politics, broadly defined, of natures, and its associated forms of environmental ideologies and forms of governance. Examination of new paradigms triggered by intensive urbanization, migration, biodiversity and climate changes, and evolution of new environmental practices. Study moves between debates in theory and debates in practice. Letter grading.

**265C. Food Systems (4)** Lecture, three hours. Review of array of food and production systems, systems of distribution, and systems of consumption to address most widespread human impacts on planetary biodiversity, landscapes, climates, and social systems. Letter grading.

**C266. Global Environment and Development: Problems and Issues (4)** Lecture, three hours; discussion, one hour. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. Concurrently scheduled with course CM166. S/U or letter grading.

**267. Environmental and Resource Economics and Policy (4)** (Same as Public Policy CM250.) Lecture, three hours. Prerequisites: courses 207 and 220B, or Public Policy 204 and 208. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Letter grading.

**268. Policy Analysis of Emerging Environmental Technologies (4)** (Same as Public Policy M286.) Lecture, three hours. Acquisition and utilization of economic, finance, planning, and policy analytic tools needed to evaluate factors that drive market adoption from early to middle market phases. Rooftop solar, electric vehicle, and energy efficiency as focal examples, with emphasis on role of policy and planning incentives intended to spur adoption. Letter grading.

**269. Special Topics in Environmental Analysis and Policy (4)** Lecture, three hours. Topics in environmental analysis and policy selected by faculty members. May be repeated for credit. S/U or letter grading.

**270. Homelessness: Housing and Social Service Issues (4)** (Same as Social Welfare M206A.) Lecture, 90 minutes; discussion, 90 minutes; one field trip. Review of current status of homelessness: who homeless are, what social services and housing are available, existing and proposed programs—appropriate architecture, management, and sources of funding. Outside speakers include providers of services to homeless. Letter grading.

**271A. Community Economic Development (4)** Lecture, three hours. Introduction to fundamentals of community economic development and neighborhood development strategies. Overview of basic approaches, important concepts, resources and language of field, and major strategies for revitalization of low-income neighborhoods. Letter grading.

**C271B. Labor and Economic Development (4)** Lecture, three hours. Exploration of economic development and identification of ways that labor and labor unions directly and indirectly influence and shape economic development. Wide range of roles that labor plays, and could play, in promoting and supporting economic development for all. Concurrently scheduled with course CM172. Letter grading.

**272. Introduction to Market-Rate Real Estate Development and Finance (4)** (Same as Architecture and Urban Design M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. Prerequisite: course 220A. Recommended for first-year students in community development and built environment area of concentration. Introduction to real estate development process specifically geared to students in planning, architecture, and urban design. Financial decision model, market studies, designs, loan packages, development plan, and feasibility studies. Lectures and projects integrate development process with proposed design solutions that are interactively modified to meet economic feasibility tests. S/U or letter grading.

**272B. Advanced Real Estate Studio (4)** Studio, three hours. Prerequisite: course M272. Study combines disciplines of planning, urban design, construction, real estate finance and investment, and property operations and management. Students learn about behind-the-scene negotiations and decisions, and gain better ability to determine real estate project feasibility, deeper understanding about financing methods and alternatives, and knowledge about ways to frame development programs for success. Letter grading.

**273. Site Planning (4)** Lecture, 90 minutes; laboratory, 90 minutes. Prerequisite: course 274. Introduction to principles of site planning for urban areas. S/U or letter grading.

**274. Introduction to Physical Planning (4)** Lecture/workshop, 90 minutes; discussion, 90 minutes. Designed for students with no prior physical planning background and for first-year MA students in community development and built environment, design and development, and transportation policy and planning concentrations. Introductory overview of physical planning, land use, site analysis, and surveys; regulatory structures and social/community impacts. Letter grading.

**275. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits (4)** (Same as Public Policy M243 and Social Welfare M290U.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

**276A. Urban Housing (1 to 8)** (Same as Law M287.) Lecture, three hours. Course M276A is enforced requisite to 276B. Examination of past 40 years of federal and state programs to stem urban decline and improve housing in U.S.; comparison and contrast of legal and policy initiatives in areas of public housing, housing segregation, mortgage subsidies, landlord/tenant law, urban renewal, and community organizing. Research paper required. In Progress grading (credit to be given only on completion of course 276B).

**276B. Urban Housing (1 to 8)** Lecture, three hours. Enforced requisite: course M276A. Continuation of course M276A. Examination of past 40 years of federal and state programs to stem urban decline and improve housing in U.S.; comparison and contrast of legal and policy initiatives in areas of public housing, housing segregation, mortgage subsidies, landlord/tenant law, urban renewal, and community organizing. Research paper required. S/U or letter grading.

**277. Historic Preservation: Principles and Practices (4)** Lecture, 90 minutes; discussion, 90 minutes. Overview of preservation field, including history and theory, current legislation, tax incentives, preservation planning, landmark and district surveys and designations, adaptive reuse, citizen involvement, and social issues. S/U or letter grading.

**278. More Jobs, Better Jobs: Work and Policy (4)** Lecture, three hours. Central issues in urban economic development is jobs—how to create them, how to help disadvantaged populations get access to them, and how to ensure that they are of adequate quality in terms of wages, advancement, and skill development. Examination of how urban labor markets work and what can be done to help them work better, with focus on U.S. Particular emphasis on low-wage, low-skill workers and marginalized groups, such as inner-city people of color and immigrants. Analyses of how urban labor markets work with discussions of policy options for making them work better and range of solutions, including job creation, workforce training, job ladder creation, union and community organizing, and immigration reform. Examination of power and economic inequality and how to make changes. Letter grading.

**279. Seminar: Public Space (4)** Seminar, three hours. Investigation of changes in production, consumption, design, and meaning of public space and analysis of socioeconomic, political, and cultural factors that lie behind them. Letter grading.

**280. Affordable Housing Development (4)** Lecture, three hours. Prerequisites: courses 220A, 220B. Overview of basic concepts and skills utilized in nonprofit development initiatives, especially by community-based organizations. Focus on nonprofit provision of subsidized housing, emphasizing way professionals broker debt and equity funding from private, governmental, and philanthropic sources. Use of client projects and negotiation exercises. S/U or letter grading.

**281. Introduction to History of Built Environment in U.S. (4)** Lecture, two hours; discussion, one hour. Open to advanced undergraduates with consent of instructor. Introduction to history of physical forms of urbanization in America; survey of economic, political, social, and aesthetic forces behind creation of built environments. S/U or letter grading.

**282. Urban Design: Theories, Paradigms, Applications (4)** Lecture, three hours. Discussion and evaluation of philosophical bases, ideologies, and paradigms of urban design in last century; examination of how these are reflected on built environment of cities. Letter grading.

**283. Community Development, Organizing, and Engagement (4)** Lecture, three hours. Examination of theory and practice of community development, organizing, and engagement. Understanding of multiple dimensions of community development (physical, economic, political, social) and how they interact, as well as major debates about community development strategies. Analysis of role of community organizing as empowerment strategy in disadvantaged and marginalized communities, and relationship of community and worker organizing to broader movements for social change. Consideration of various approaches to community participation and engagement, and struggles over power and inclusion within these processes. Examination of relations between community development, organizing, and engagement. Particular attention to race, gender, and class dimensions of these processes, issues of power, and how planner's role connects with processes. Letter grading.

**C284. Looking at Los Angeles (4)** Lecture, three hours. Introduction to history and physical form of Los Angeles, with emphasis on understanding social, economic, and political issues in development of Los Angeles. Concurrently scheduled with course C184. Letter grading.

**C285. Built Environment and Health (4)** (Formerly numbered 285.) Lecture, three hours. Exploration of important linkages between urban-built environment and public-health outcomes using ecological, urban planning, and community-based lenses through theory and series of case studies. Knowledge of these linkages is used to propose ecological solutions to issues at nexus of built environment and public health. May be concurrently scheduled with course CM157. Letter grading.

**287. Politics, Power, and Philanthropy (4)** (Same as Public Policy M227 and Social Welfare M290S.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

**288. Nonprofit Organizations and Philanthropy: Management and Policy (4)** (Same as Public Policy M228 and Social Welfare M241E.) Lecture, three hours; outside study, nine hours. Increased importance of nonprofit organizations—as service providers, vehicles of humanitarian assistance, policy advocates, social entrepreneurs, innovators, and as instruments of government reform—have moved this set of institutions closer to center of social welfare, urban planning and public policy agendas. Introduction of conceptual background, examination of theories and aspects of organizational behavior, and management models and policy frameworks. Lectures, seminar-type discussion, in-class presentations, and guest presentations. Letter grading.

**289. Sprawl and Smart Growth (4)** Lecture, three hours. Suburbs are not new, but metropolitan areas in U.S. and elsewhere continue to grow rapidly at their edges in ways that many consider poorly planned. Discussion of causes and impacts of sprawl as it relates to smart growth. Letter grading.

**291. Introduction to Sustainable Architecture and Community Planning (4)** (Same as Architecture and Urban Design CM247A.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Letter grading.

**292. Elements of Urban Design (4)** (Same as Architecture and Urban Design M271.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations. S/U or letter grading.

**293. Politics, Ideology, and Design (4)** (Same as Architecture and Urban Design M293.) Lecture, three hours. Exploration of cultural and political context of architecture and planning work. Examination of theory and practice from variety of perspectives applied to set of varied physical environments and to set of current spatialized concepts. Consideration of theoretical propositions that are shaping present urban and architectural debate and concrete case studies where politics and ideology shape design process. Letter grading.

**294. Housing in Developing Countries: Policy Objectives and Options (4)** Lecture, three hours. Examination of relevance of public policies and their intended and unintended effects on housing demand and supply in developing countries. How definition of housing problems, and scope of solutions, has changed over time. Critical assessment of some key solutions that have been tried in past, their advantages, shortcomings, and resultant trade-offs, and likely directions for future housing policy. Letter grading.

**295. Introduction to Urban Humanities (4)** (Same as Architecture and Urban Design M295.) Seminar, six hours; studio, six hours. Core introduction to urban humanities. Analytical and descriptive methods of humanities paired with speculative and projective methods of architectural and urban design to better understand contemporary state of human environment. Focus on Los Angeles, with concepts seminar, methods laboratory, projects studio, and site visit components. Offered in summer only. S/U or letter grading.

**296. Housing Policy and Planning (4)** (Same as Public Policy M243B.) Lecture, three hours. Study of housing policy and planning focused partly on California given rapid changes occurring in state, with consideration of experiences from other states and countries and to what extent they are relevant here. Specific topics likely include policies such as social housing, rent control, and housing finance, issues of household formation, housing supply, housing submarkets, and gentrification, as well as planning processes related to housing production and Affirmatively Furthering Fair Housing. Letter grading.

**297. Current Issues in Urban Planning (1 to 4)** Seminar, three hours. Current issues in urban planning selected by students in conjunction with faculty members. May be repeated for credit. S/U grading.

**297B. Current Issues in Public Affairs (2)** (Same as Public Policy M297C and Social Welfare M297B.) Lecture, one to two hours. Introduction to wide range of current issues in public affairs. Luskin school faculty present material from their research and teaching. Assigned readings are distributed in advance of each meeting. S/U grading.

**297F. Career Planning and Management (2)** (Same as Public Policy M297F and Social Welfare M297F.) Tutorial, six hours. Designed to meet professional development needs of first-year Public Policy, Social Welfare, and Urban Planning students. Development of career management skills while balancing busy life of graduate student. More than just deciding on chosen career path, career planning and management involves taking concrete steps to become career ready. Students gain fundamental career management skills to be competitive on job market, including creating competitive résumé and practicing interviewing articulately. Offers opportunity to learn professional development skills to assist with career planning strategies. S/U grading.

**298. Special Topics in Emerging Planning Issues (2, 4)** Seminar, three hours. Topics in newly emerging planning issues such as role of cutting-edge technology, innovative policies, and experimental programs. May be repeated for credit. Letter grading.

**404. Joint Planning/Architecture Studio (4)** (Same as Architecture and Urban Design M404.) Lecture, one hour; discussion, one hour; studio, four hours. Opportunity to work on joint planning/architecture project for client. Outside speakers; field trips. Examples of past projects include Third Street Housing, Santa Monica; New American House for nontraditional households; Pico-Aliso Housing, Boyle Heights; working with resident leaders at Los Angeles City public housing developments. S/U or letter grading.

**470. Improving Worker Health: Social Movements, Policy Debates, and Public Health (4)** (Same as Community Health Sciences CM470 and Environmental Health Sciences M471.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. S/U or letter grading.

**495. Teaching Luskin Public Affairs (2)** (Same as Public Policy M495 and Social Welfare M495.) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. S/U grading.

**496. Field Projects (4)** Tutorial, four hours. May not be repeated for credit. S/U grading.

**501. Cooperative Program (2 to 8)** Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

**596. MA Research in Planning (2 to 4)** Tutorial, one and one-half to three hours. May be repeated once for credit for maximum of 8 units. S/U grading.

**597. Preparation for MA Comprehensive Examination or PhD Qualifying Examinations (4 to 12)** Tutorial, four hours. May be repeated for credit by PhD students. S/U grading.

**598. Preparation for MA Thesis in Urban Planning (4)** Tutorial, four hours. May be repeated but may be applied toward degree only once. S/U grading.

**599. PhD Dissertation Research in Planning (2 to 12)** Tutorial, to be arranged. May be repeated for credit. S/U grading.



# Urology

## Urology Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**199. Directed Research in Urology (2 to 8)** Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

# Visual and Performing Arts Education

## Arts Education Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Introduction to Community Engagement through Arts (5)** Lecture, three hours; discussion, one hour; outside study, 11 hours. Introduction to fields of community engagement and arts education informed by philosophies of progressive education and social justice movements. By looking at community engagement as issue of equity and social justice, examination of basic theories of creativity, artistic development, and community partnership, and history, philosophies, politics, and sociocultural trends of community engagement in American society. Attendance at UCLA arts presentations and introduction to creative process. Readings and discussions to understand community engagement and arts education as crucial elements of comprehensive education, with emphasis on writing process, including regular writing assignments that require students to read, analyze, critique, and evaluate community arts practices and arts education scholarship. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**101. Selected Topics in Arts Education (4)** Lecture, three hours; outside study, nine hours. Selected topics in arts education explored through variety of approaches that may include community projects, guided teaching experiences, studio and/or fieldwork, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 8 units. P/NP or letter grading.

**102. Introduction to Arts Education for Multiple Publics: Theory and Practice (4)** (Same as Education M142.) Seminar, three hours; outside study, nine hours. Introductory course with focus on arts education for multiple publics in inner-city settings. Study of core issues in arts education, creativity, and social justice as students develop, implement, and assess original syllabi, lesson plans, and community learning projects for multiple publics in inner-city schools and arts organizations. Collaboration with partner schools in planning, teaching, and evaluation of arts education programs in dance, music, theater, and visual arts. P/NP or letter grading.

**103. Socially Engaged Pedagogy in Arts (4)** Lecture, three hours; outside study, nine hours. Students are in contact and conversation with active community-based artists and youth workers regularly utilizing socially engaged goals, principles, and practices. Based on readings and investigations, students research and write one case study on one particular arts site that is currently utilizing socially engaged pedagogies and art-making strategies. Theoretical and experiential components provided for students from all arts disciplines to explore tactics and strategy of socially engaged pedagogy and arts practice through variety of approaches that may include readings, visual and audio documentation, discussion, research papers, oral presentations, and relevant guest speakers. P/NP or letter grading.

**105. Arts Programs in Correctional Institutions: History, Theory, and Practice (4)** Lecture, three hours; outside study, nine hours. Examination of attitudes of prison arts programming with correctional staff, artists working in prisons, political figures, and community while critically engaging with consequences of correctional environment without outside influence of arts as role model for inspiration and discipline. Selected topics and themes in arts education in

correctional institutions explored through variety of approaches that may include readings, visual and audio documentation, discussion, research papers, oral presentations, and relevant guest speakers. P/NP or letter grading.

**107. Visual Arts Methods for Teaching Artist (4)** Lecture, three hours; discussion, one hour. Recommended prerequisite: experience in specific art form. Enrollment by consent of instructor. Methodological approach to teaching visual arts specifically in K-12 setting. Emphasis on strategies for teaching in hybrid settings, inclusive of management strategies, evaluation, and portfolio development. Exploration through variety of approaches may include community projects, visual artwork, guided teaching experiences, studio and/or fieldwork, readings, discussion, and oral presentations. P/NP or letter grading.

**108. Performing Arts Methods for Teaching Artist (4)** Lecture, three hours; discussion, one hour. Recommended preparation: experience in specific art form. Enrollment by consent of instructor. Methodological approach to teaching dance, theatre, and performing arts specifically in K-12 setting. Emphasis on strategies for teaching in hybrid settings, inclusive of management strategies, evaluation, and repertoire development. Exploration through variety of approaches may include community projects, performance, guided teaching experiences, studio and/or fieldwork, readings, discussion, and oral presentations. P/NP or letter grading.

**109. Design|Media Arts Methods for Teaching Artist (4)** Lecture, three hours; discussion, one hour. Recommended preparation: experience in specific art form. Enrollment by consent of instructor. Methodological approach to teaching design media arts specifically in K-12 setting. Emphasis on strategies for teaching in hybrid settings, inclusive of management strategies, evaluation, and portfolio development. Exploration through variety of approaches may include community projects, digital artwork, guided teaching experiences, studio and/or fieldwork, readings, discussion, and oral presentations. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**192. Arts Education Undergraduate Practicum: Preparation, Observation, and Practice (4)** (Same as Education M129.) Seminar, three hours. Enforced prerequisite: course M102. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students implement and evaluate original arts education programs under guidance of faculty members in small course settings. P/NP or letter grading.

**192XP. Arts Education Undergraduate Practicum and Capstone Project (4)** (Formerly numbered M192SL.) (Same as Education M129XP) Seminar, three hours; practicum, three hours; outside study, six hours. Enforced prerequisites: courses M102, M192. Limited to juniors/seniors. Continuation of arts education training and supervised practicum for advanced undergraduate students participating in Visual and Performing Arts Education minor. Students continue to implement and evaluate original arts education programs under guidance of faculty members and designated guiding teachers in K-12 public school settings. May be repeated for credit with consent of instructor. P/NP or letter grading.

**195. Community Internships in Arts Education (2 to 4)** Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in supervised setting in K-12 schools or community arts organizations. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**197. Individual Studies in Arts Education (2 to 4)** Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors in Visual and Performing Arts Education minor and/or arts education teaching sequence. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. Letter grading.

# World Arts and Cultures/ Dance

## Dance Courses

### Lower Division

**1. Global Perspectives on Dance (5)** Lecture, three hours; discussion, one hour. Examination of practices of choreography, improvisation, and technique in different cultural settings and historical eras. Introduction to field of dance studies through analysis of broad spectrum of philosophies and practices within global context, with focus on creative act of dance-making, thinking and understanding act of improvising, and diverse ways of training one's body. By framing process of analysis within array of historical periods and cultural settings, development of capacity to engage with dance as lived social and artistic practice while refining critical seeing, thinking, and writing skills. P/NP or letter grading.

**5. Moving Voice (2)** Studio, three hours. Experiential Investigation of voice as it relates to resonant, physical body. Working with primal qualities of voice and how it interfaces with breath, physical anatomy, and space around us. Physical approach to singing, with singing being defined in its broadest sense as all possible sounds emitted by human voice. May be repeated for credit without limitation. P/NP or letter grading.

**6. Beginning West African Dance (2)** Studio, three hours. Beginning-level study of dances originating from Mandingo culture in sub-Saharan Africa. May be repeated for credit without limitation. P/NP or letter grading.

**9. Beginning Hip-Hop Dance (2)** Studio, three hours. Beginning-level study of hip-hop movement practices. May be repeated for credit without limitation. P/NP or letter grading.

**10. Beginning Martial Arts (2)** Studio, three hours. Beginning-level study of Tai Chi Chuan and other martial arts forms. May be repeated for credit without limitation. P/NP or letter grading.

**11. Yoga (2)** Studio, three hours. Beginning-level study of yoga. May be repeated for credit without limitation. P/NP or letter grading.

**12. Beginning Special Topics (2)** Studio, three hours. Beginning-level study of variable movement practices. May be repeated for credit without limitation. P/NP or letter grading.

**13. Beginning Ballet (2)** Studio, three hours. Beginning-level study of ballet as movement practice. May be repeated for credit without limitation. P/NP or letter grading.

**15. Beginning Modern/Postmodern Dance (2)** Laboratory, four hours. Study of modern and/or postmodern movement practice. May be repeated for credit without limitation. P/NP or letter grading.

**16. Beginning Improvisation in Dance (2)** Laboratory, four hours. Introduction to creative exploration in movement through improvisational and compositional exercises that access and develop imagination, find relationship between imagination and dance making, and enrich movement vocabulary. May be repeated for credit without limitation. P/NP or letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP or letter grading.

**44. World Dance Histories (5)** Lecture, three hours; discussion, two hours. Comparative framework for looking at dance practices through time as they have developed around world, questioning relation of dance to culture and politics and providing students with tools for investigating histories of any given dance form. P/NP or letter grading.

**45. Introduction to Dance Studies (4)** Lecture, three hours. Enforced prerequisite: course 44. Introduction to discipline of dance studies, with focus on study of corporeality as key contemporary perspective on body. Multidisciplinary approach to dancing bodies conceptualized as social constructs, including attention to gender, race, class, and national identity. P/NP or letter grading.

**52. Intermediate Special Topics (2)** Studio, three hours. Intermediate-level study of variable movement practices. May be repeated for credit without limitation. P/NP or letter grading.

**56. Intermediate West African Dance (2)** Studio, three hours. Intermediate-level study of dances originating from Mandingo culture in sub-Saharan Africa. May be repeated for credit without limitation. P/NP or letter grading.

**59. Intermediate Hip-Hop Dance (2)** Studio, three hours. Intermediate-level study of hip-hop movement practices. May be repeated for credit without limitation. P/NP or letter grading.

**60. Intermediate Martial Arts (2)** Studio, three hours. Intermediate-level study of Tai Chi Chuan and other martial arts forms. May be repeated for credit without limitation. P/NP or letter grading.

**63. Intermediate Ballet (2)** Studio, three hours. Intermediate-level study of ballet as movement practice. May be repeated for credit without limitation. P/NP or letter grading.

**65. Intermediate Modern/Postmodern Dance (2)** Studio, four hours. Intermediate-level work in modern and/or postmodern movement practices. Technical training with emphasis on increasing skill. May be repeated for credit without limitation. P/NP or letter grading.

**67A. Theories and Methods in Dance Composition I: Languages (4)** Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisite: course 16. Examination of diverse movement sources from which dances are made. How do different choreographers envision vocabularies of movement they use? How do they select or create movement out of which they create dance? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Readings about and viewing of videos of selected artists' work and their different strategies for creating languages of their dances for comparison. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

**67B. Theories and Methods in Dance Composition II: Processes (4)** Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisite: course 67A. Examination of diverse processes through which creation of dance can take place. How do different choreographers conceptualize creative process of dance-making? What kinds of strategies do they use for sequencing their materials? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Readings about and viewing of videos of selected artists' work and their different strategies for their processes of creating dances for comparison. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

**70. Production Practicum (2)** Lecture, 90 minutes; activity, three and one half hours. Introduction to practical perspectives on producing events in world arts and cultures, including but not limited to theatrical support and planning and executing lecture series. Introduction to professional stage production principles and hands-on experience in technical theater. May be repeated once for credit. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**101. Theories of Dance (5)** Lecture, four hours; discussion, two hours. Enforced requisite: course 45. Ideas of dance, choreography, and movement have achieved broad resonance in contemporary performance, art, politics, culture, and studies of social behavior. Examination of concepts and approaches to dance studies and deployments of its vocabulary within field and beyond, concentrated in four principal approaches: history, ethnography, choreographic analysis, and critical theory. Use of key ideas in dance to investigate allied areas of performance, embodiment, social constructions of identity and difference, and relationship between aesthetics and politics. Design of dance performances to illustrate link between theory and practice. How dance creates alternative modes of history and knowledge in range of cultural contexts. P/NP or letter grading.

**C106A. Advanced West African Dance (2)** Studio, three hours. Advanced-level study of dances originating from Mandingo culture in sub-Saharan Africa. May be repeated for credit without limitation. Concurrently scheduled with course C406A. P/NP or letter grading.

**C109A. Advanced Hip-Hop Dance (2)** Studio, three hours. Advanced-level study of hip-hop movement practices. May be repeated for credit without limitation. Concurrently scheduled with course C409A. P/NP or letter grading.

**C112A. Advanced Special Topics (2)** Studio, three hours. Advanced-level study of variable movement practices. May be repeated for credit without limitation. Concurrently scheduled with course C412A. P/NP or letter grading.

**C113A. Advanced Ballet (2)** Studio, three hours. Advanced-level study of ballet as movement practice. May be repeated for credit without limitation. Concurrently scheduled with course C413A. P/NP or letter grading.

**114. Performance Practicum. (1 to 4)** Studio, three to 12 hours. Rehearsal and performance in selected choreographic/theatrical work. May be repeated for credit without limitation. P/NP grading.

**C115. Advanced Modern/Postmodern Dance (2)** Studio, six hours. Advanced-level work in modern and/or postmodern movement practices. Technical training, with emphasis on increased understanding of movement principles and ability to apply these to performance. May be repeated for credit without limitation. Concurrently scheduled with course C415. P/NP or letter grading.

**116. Advanced Improvisation in Dance (2)** Studio, four hours. Enforced requisite: course 16. Development of aesthetic perspective through use of imagery, sound, and other art. Concentration and projection. May be repeated for credit without limitation. P/NP or letter grading.

**117A. Theories and Methods in Dance Composition III: Locations (4)** Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisites: courses 16, 67A, 67B. Examination of how location of dancing impacts its meaning. How does occasion of dance, concert, festival, ritual, or celebration influence experience of it? What are factors that need to be considered when locating dance in one particular place? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Examination of range of locations for dances, including proscenium stages, theaters in round, parks, sidewalks, temples, amphitheaters, village squares, and other site-specific locations that endow dance with specific significance and how various artists have worked with place in construction of new dances. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

**117B. Theories and Methods in Dance Composition IV: Impacts (4)** Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisites: courses 16, 67A, 67B. Examination of relation of dance to its audience. Synthesis of analyses undertaken in previous courses to determine how dances move their viewers. How do dances appeal to or address their audiences? How do dance vocabulary, sequencing, and location combine to create particular effects? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Different approaches to dance result in highly distinctive kinds of responses from audiences. Focus on creation of three in-depth studies, each of which endeavors to construct distinctive kind of response from viewers. P/NP or letter grading.

**117C. Advanced Topics in Choreography (4)** Lecture, four hours; studio, two hours; outside study, six hours. Enforced requisites: courses 16, 67A, 67B. Directed exploration in composition, with focus on developing theme-based choreographic works that are informed by theoretical engagement with selected topics through lectures, readings, and discussion. Thematic topics include contemporary issues and concerns such as image, essence, and abstraction; home, history, and memory; interculturalism; constructing identity. May be repeated for credit without limitation. P/NP or letter grading.

**118. Advanced Performance Practicum (1 to 4)** Studio, three to 12 hours. Rehearsal and performance in selected choreographic/theatrical work, participation-based. Students perform in work led by MFA students, such as in an MFA choreography class or MFA capstone project that culminates in a showing or performance. May be repeated for credit without limitation. P/NP or letter grading.

**C122. Music and Dance Collaborations (4)** Studio, four hours. Requisites: courses 67A, 67B. Designed for dance students who have had prior coursework/experience in choreography and for music students who have had prior coursework/experience in music composition. Opportunity for directors, choreographers, and composers to work together creating and developing material in their respective disciplines. Exploration of different forms and ways of approaching creative process of making dance and music, presenting material on weekly basis, and developing skills for discussion, critique, and review. Concurrently scheduled with course C222. P/NP or letter grading.

**C145XP. Selected Topics in Dance Studies (4)** (Formerly numbered C145.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Selected topics in study of dance and corporeality. Consult Schedule of

Classes for topics to be offered in specific term. May be repeated for credit with topic change. Concurrently scheduled with course C245XP. P/NP or letter grading.

**C152. History and Theory of Modern/Postmodern Dance (4)** Lecture, four hours; studio, two hours; outside study, six hours. Introduction to key figures in creation of modern dance, with special attention to their theories and philosophies and tracing of radical shift to postmodern dance that occurred in mid-20th century. Contemporary developments, both historical and theoretical. Student projects involve choreography and writing. Concurrently scheduled with course C252. P/NP or letter grading.

**157. Choreographing Disability (4)** (Same as Disability Studies M157.) Seminar, four hours. Through study of range of performance by, featuring, or about people who identify as disabled, reading and discussion of range of writing about experiences of disability and process of making work about disability by key artists and thinkers. Introduction to concept of choreography as political/cultural idea broadly defined as scored movement and organization and behavior of bodies, as well as choreography as poetic form for expression of ideas, creative tool, or product. Viewing and discussion of work, and embodying ideas through movement and dance-making. P/NP or letter grading.

**158. Choreographing Gender (4)** Lecture, three hours; laboratory, two hours. Designed for juniors/seniors. Analysis of aesthetic codes and theatrical choreographic approaches as they intersect with construction of gender in U.S., with close attention to race, class, and sexuality. P/NP or letter grading.

**160. Topics in Body Mechanics (4)** Lecture, three hours; studio, one hour. Designed for juniors/seniors. Variable topics course with discussion of injury prevention, anatomy for dancers, and study of biological and physical principles of human movement as related to dance. May be repeated for credit without limitation. P/NP or letter grading.

**CM168. Art-Making beyond the Campus (4)** (Same as World Arts and Cultures CM168.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course CM268. P/NP or letter grading.

**170. Advanced Production (1 to 2)** Laboratory, three hours; outside study, up to three hours. Requisite: course 70. Further development and application of practical perspectives on producing events in department, including but not limited to theatrical support and planning and executing lecture series. Provides students with advanced practical knowledge necessary, as well as opportunity to study nature of this component in world arts and cultures/dance studies. May be repeated for credit without limitation. P/NP grading.

**C171. Dance Production: Variable Topics (4)** Lecture, four hours; laboratory, two hours. Foundational experience in range of dance production practices, including but not limited to lighting design, set design, costume design, and stage management. Practical training in area covered, combined with theoretical inquiry into practice and opportunities for students to reflect on their own work and that of others. Completion of production project required. May be repeated for maximum of 12 units. Concurrently scheduled with course C271. P/NP or letter grading.

**174A. Projects in Dance (2)** Laboratory, four hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit without limitation. P/NP grading.

**C174B. Projects in Dance (4)** (Formerly numbered 174B.) Laboratory, six hours. Individualized final showing, video viewing and comparison paper in choreography, performance, cultural studies, production, and media. May be repeated for credit without limitation. Concurrently scheduled with course C274B. P/NP or letter grading.

**C180. Dance for Camera (4)** Lecture, two hours; laboratory, two hours. Introduction to making dance for camera. Students acquire and apply basic video production skills for creation of movement-based projects. With rudimentary tools—to film, frame, set up shots, storyboard, design shot lists, and set-up lists, log and capture, edit, and export footage—students create their own dance for camera video projects. Students gain deeper understanding of conceptualization, practice, theory, history, and current state of dance for camera. Concurrently scheduled with course C280. Letter grading.

**182. Dance and Visual Media (4)** Lecture, four hours. Examination of aesthetic differences between dance, film, and video and exploration of new aesthetic when they are combined. Analysis of record and documentary dance film, choreo-cinema, and impact of MTV, as well as integration of media with performance. Letter grading.

**C184. Production Arts Seminar (4)** Seminar, four hours. Theory and practice of production administration, including hands-on case studies for producing public events in arts and academia. Topics include, but are not limited to, his-

tory and theories of producing, mission statements, budgeting, marketing, public relations, fund-raising, legalities, and archiving. Concurrently scheduled with course C243. P/NP or letter grading.

**186A. Senior Projects in Dance (4)** Lecture, four hours; outside study, eight hours. Requisite: 8 units of choreography as creative inquiry courses. Course 186A is requisite to 186B. Limited to senior Dance majors by permission of instructor. Application of concepts, skills, and content from interdisciplinary major to individual projects. Methodologies may include critical, comparative, ethnographic, and performance approaches. Lecture/seminar format with Dance faculty during first term; faculty-directed presentations of individual projects during second term. Letter grading.

**186B. Senior Projects in Dance (4)** Lecture, four hours; outside study, eight hours. Requisite: course 186A. Limited to senior Dance majors. Application of concepts, skills, and content from the interdisciplinary major to individual projects. Methodologies may include critical, comparative, ethnographic, and performance approaches. Faculty-directed presentation of individual projects. Letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

## Graduate

**211A. Advanced Choreography (4)** Lecture, two hours; studio, two hours. Theoretical aspects of advanced choreography for students who have reached level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

**211B. Advanced Choreography (4)** Lecture, two hours; studio, two hours. Theoretical aspects of advanced choreography for students who have reached level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

**211C. Advanced Choreography (4)** Lecture, two hours; studio, two hours. Theoretical aspects of advanced choreography for students who have reached level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

**211D. Advanced Choreography (4)** Lecture, two hours; studio, two hours. Theoretical aspects of advanced choreography for students who have reached level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

**C222. Music and Dance Collaborations (4)** Studio, four hours. Requisites: courses 67A, 67B. Designed for dance students who have had prior coursework/experience in choreography and for music students who have had prior coursework/experience in music composition. Opportunity for directors, choreographers, and composers to work together creating and developing material in their respective disciplines. Exploration of different forms and ways of approaching creative process of making dance and music, presenting material on weekly basis, and developing skills for discussion, critique, and review. Concurrently scheduled with course C122. S/U or letter grading.

**C243. Production Arts Seminar (4)** Seminar, four hours. Theory and practice of production administration, including hands-on case studies for producing public events in arts and academia. Topics include, but are not limited to, his-

tory and theories of producing, mission statements, budgeting, marketing, public relations, fund-raising, legalities, and archiving. Concurrently scheduled with course C184. S/U or letter grading.

**C245XP. Selected Topics in Dance Studies (4)** (Formerly numbered C245.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Selected topics in study of dance and corporeality. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. Concurrently scheduled with course C145XP. S/U or letter grading.

**C252. History and Theory of Modern/Postmodern Dance (4)** Lecture, four hours; studio, two hours; outside study, six hours. Introduction to key figures in creation of modern dance, with special attention to their theories and philosophies and tracing of radical shift to postmodern dance that occurred in mid-20th century. Contemporary developments, both historical and theoretical. Student projects involve choreography and writing. Concurrently scheduled with course C152. S/U or letter grading.

**CM268. Art-Making beyond the Campus (4)** (Same as World Arts and Cultures CM268.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course CM168. S/U or letter grading.

**C271. Dance Production: Variable Topics (4)** Lecture, four hours; laboratory, two hours. Foundational experience in range of dance production practices, including but not limited to lighting design, set design, costume design, and stage management. Practical training in area covered, combined with theoretical inquiry into practice and opportunities for students to reflect on their own work and that of others. Completion of production project required. May be repeated for maximum of 12 units. Concurrently scheduled with course C171. S/U or letter grading.

**C274B. Projects in Dance (4)** Laboratory, six hours. Individualized final showing, video viewing and comparison paper in choreography, performance, cultural studies, production, and media. May be repeated for credit without limitation. Concurrently scheduled with course C174B. S/U or letter grading.

**C280. Dance for Camera (4)** Lecture, two hours; laboratory, two hours. Introduction to making dance for camera. Students acquire and apply basic video production skills for creation of movement-based projects. With rudimentary tools—to film, frame, set up shots, storyboard, design shot lists, and set-up lists, log and capture, edit, and export footage—students create their own dance for camera video projects. Students gain deeper understanding of conceptualization, practice, theory, history, and current state of dance for camera. Concurrently scheduled with course C180. Letter grading.

**C406A. Advanced West African Dance (2)** Studio, three hours. Advanced-level study of dances originating from Mandingo culture in sub-Saharan Africa. May be repeated for credit without limitation. May be repeated for credit without limitation. Concurrently scheduled with course C106A. S/U or letter grading.

**C409A. Advanced Hip-Hop Dance (2)** Studio, three hours. Advanced-level study of hip-hop movement practices. May be repeated for credit without limitation. Concurrently scheduled with course C109A. S/U or letter grading.

**C412A. Advanced Special Topics (2)** Studio, three hours. Advanced-level study of variable movement practices. May be repeated for credit without limitation. Concurrently scheduled with course C112A. S/U or letter grading.

**C413A. Advanced Ballet (2)** Studio, three hours. Advanced-level study of ballet as movement practice. May be repeated for credit without limitation. Concurrently scheduled with course C113A. S/U or letter grading.

**C415. Advanced Modern/Postmodern Dance (2)** Studio, six hours. Advanced-level work in modern and/or postmodern movement practices. Technical training, with emphasis on increased understanding of movement principles and ability to apply these to performance. May be repeated for credit without limitation. Concurrently scheduled with course C115. S/U or letter grading.

**441. Dance Production Practicum (2 to 4)** Laboratory, four to eight hours (one or two hours may be individualized consultation). Skills and understanding of production components in roles of stage manager, production assistants, and producer. May be repeated for maximum of 8 units. S/U grading.

**452. Directed Field Study in Dance Education. (2 to 8)** Seminar, one hour; field study, two hours minimum. Directed field study to provide teaching experience in community school or other approved site. No more than 4 units may be applied toward MA degree requirements. S/U grading.

**490. Projects in Choreography and Performance (2 to 8)** Tutorial, one three-hour rehearsal per unit per week minimum. Creation, casting, and rehearsing of culminating concert, reflecting professional achievement in choreography

or performance, in first term. In second term, direction of on-stage rehearsals for culminating concert by each student leading to fully staged performance. May be repeated for maximum of 16 units. S/U or letter grading.

**498. Professional Internship in Dance (4 to 12)** Seminar, to be arranged. Full- or part-time supervised fieldwork. Limited to MFA students. Internship in dance, theater, film, or television organization. Participation in creative, administrative, or technical work of professionals in their specialties. S/U or letter grading.

## World Arts and Cultures Courses

### Lower Division

**1. Introduction to World Arts and Cultures (5)** Lecture, three hours; discussion, one hour. Survey of concepts and theories involved in intercultural, interdisciplinary study of art, aesthetics, and performance. Examination of interactions among various modes of creative expression, role of style in daily life, performative representation of cultural identity and difference, and interaction of diverse artistic traditions. Letter grading.

**2. Lower-Division Seminar (5)** Seminar, four hours; outside study, 11 hours. Variable topics seminar with focus on scholarly and practice-based research in arts. In-depth investigations of topics ranging from body in cultural context, interdisciplinary art-making, visual cultures, oral genres, material culture, study of culture and performance, including individual and cultural identity through arts, creation of dance/theatrical performance, theoretical and analytical approaches to arts practice, arts activism, and other topics pertaining to broad fields of culture, performance, and dance. Research inquiry methods may include readings, assigned written analysis, supervised fieldwork, individual and collaborative assignments, and/or practice-oriented processes. Substantial culminating project integrating theoretical and practical components of selected seminar topic required. May be repeated for credit. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Culture: Introduction (5)** Lecture, four hours. Introduction to key concepts and major theoretical and methodological debates that characterize field of cultural studies, including discussion of notions of culture, popular culture, subculture, youth culture, hegemony, gender, race, class, and national identity. Letter grading.

**23. Introduction to American Indian Studies (5)** (Same as American Indian Studies M10.) Lecture, three hours; discussion, one hour; activity, one hour. Survey of selected Native North American cultures from pre-Western contact to contemporary period, with particular emphasis on early cultural diversity and diverse patterns of political, linguistic, social, legal, and cultural change in postcontact period. P/NP or letter grading.

**24. World Arts, Local Lives (5)** Lecture, three hours; discussion, one hour. Use of Fowler Museum's long-term exhibition entitled "Intersections: World Arts/Local Lives" as object of study to examine many insights that arts can offer into social, political, and religious experience. Drawing heavily on cultures of Africa, Asia, Pacific, and indigenous Americas, both ancient and contemporary, consideration of degree to which notions of aesthetics and efficacy are intertwined and interdependent in art forms made to intervene in people's lives in active, instrumental ways. Use of specific case studies to illustrate and interrogate theoretical paradigms. P/NP or letter grading.

**33. Colonialisms and Resistance (5)** Lecture, three hours; discussion, one hour. Introduction to study of indigenous worldviews as they are expressed through art, mythology, ritual, health practice, languages, and ecology. With examples spanning globe, consideration of issues of colonialism, tradition, religious change, and legal and social implications of epistemological differences between people. Examination of critical perspectives on social development, historical progress, and intellectual assimilation. P/NP or letter grading.

**51W. Aliens, Psychics, and Ghosts (5)** Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3. Combination of approaches of discourse analysis and scientific method to understand how people make sense of other people's stories of aliens, psychics, and ghosts. Exploration of how people come to believe what they do about human life, life after death, and other-than-human life. Satisfies Writing II requirement. Letter grading.

**55. Intermediate World Arts Practices in Global and Transcultural Forms (2)** Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices crossing national and cultural boundaries. Variable topics, such as body music, cross-cultural textile creation, or mural painting, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

**78. Private Instruction in World Arts and Cultures (2 to 4)** Studio, three to six hours. Designed for freshmen/sophomores. Private or semiprivate instruction in one world arts practice with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. P/NP grading.

**79. Food Politics: Cultural Solutions to Political Problems (5)** (Same as Food Studies M79.) Lecture, four hours; discussion, one hour. Examination of issues of environmental and public health effects of intensive and extensive agriculture, influence of corporations on government, animal ethics, food deserts and urban gardening, and food insecurity. Focus on representation of such issues in documentaries, public lectures, memoirs, novels, and visual art, as well as on initiatives to address such problems through policy and activism. P/NP or letter grading.

**80. Video Tools and Techniques (2)** Laboratory, four hours. Introduction to video tools and practices to train students in key techniques of video production. Basic skills spanned to develop short videos for circulation via DVD and/or Internet. Practical exercises based on materials and instruction provided in class, spanning production and postproduction processes of video making. Evaluation of students on these exercises and final submission of edited sequence of any or all materials developed during course. Training in technical aspects of video production and usage of video tools. P/NP or letter grading.

**85. Sophomore-Year Proposal (1)** Lecture, 90 minutes. Planning and execution of proposal for junior year of study, with attention to exploring resources of department and University as whole. P/NP grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**99. Special Studies in World Arts and Cultures (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100A. Art as Social Action (5)** Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Discussion of what constitutes artist's social responsibility and in what ways art is qualified to engage in direct political action. Study of tension between powers of this world and powers of art. P/NP or letter grading.

**100B. Art as Moral Action (5)** Lecture, four hours; discussion, one hour. Designed for juniors/seniors. One's ability to distinguish between right and wrong action is culturally intuited, nurtured, and developed. Study of cultural strategies of moral engagement, persuasion, and inquiry in personal and public life, including acts of conscience and civil disobedience. P/NP or letter grading.

**101. Theories of Performance (5)** Lecture, four hours; studio, two hours. Performance commonly refers to activities on proscenium stage. Explosion of that narrow notion of performance by delving into scholarship from young field of performance studies, which draws on disciplines of anthropology, cultural studies, gender studies, linguistics, postcolonial theory, and sociology. Exploration in studio of concept of performing theory by creating interdisciplinary performance works that engage with and amplify theories studied. P/NP or letter grading.

**102. Upper-Division Seminar (5)** Seminar, three hours. Variable topics seminar with focus on advanced practice-based research in arts. In-depth investigations of topics addressing variable array of art genres including drawing, musical composition, painting, performance poetry, photography, sculpture, stand-up comedy, and theater. Research inquiry methods emphasize creation of art works supported by readings, assigned written analysis, supervised fieldwork, individual and collaborative assignments, and/or practice-oriented processes. Substantial culminating project integrating theoretical and practical components of selected seminar topic required. May be repeated once for credit. Letter grading.

**103. Arts in Communities (5)** Lecture, four hours. Introduction to theoretical and practical understanding of field of community arts by and for multiple publics. Review of relevant issues in field and exploration of roles of artists and arts organizations in struggles for social change, representation, and community building. Through national and international examples, exploration of art works that emphasize participation of citizens in community-based and culturally relevant performance, art, and exhibition. Examination of processes of creative thinking, community involvement, collaborative enterprise, research, and education in community arts. Letter grading.

**104. Representations: Theories and Practices (5)** Lecture, three hours. Enforced requisite: course 20. Limited to juniors/seniors. Advanced survey into performance, postcolonial, and gender theories to critically analyze issues of representation, specifically interrogating divides and overlaps between intellectual and artistic practice and mixing theory with practice. P/NP or letter grading.

**CM113B. Legislative Theater for Race and Gender Justice (5)** (Same as African American Studies CM113B.) Lecture, three hours; discussion, one hour (when scheduled). Exploration and application of range of interactive methods and arts-based strategies with participants from UCLA and broader Los Angeles community in order to research and influence public policy and legislative change. Students and campus partners create and perform legislative theater addressing issues of race, gender, and criminal justice system. Critical texts, collaborative work, and creative methods are used to engage perspectives on justice. Analysis of diverse and growing body of work on systems of justice through research, writing, workshops, performances, and critiques of own original writings and performances developed in response to visiting scholars and community partners. Concurrently scheduled with course CM213B. P/NP or letter grading.

**113D. Spoken Word Workshop: Creative Writing and Performance Practicum (4)** (Same as African American Studies M113D.) Lecture, three hours. Enrollment by consent of instructor. Shaped by, and consistently inspiring, broader movements for social and political change, practice of spoken word today provides creative outlets for writers and performing artists worldwide by resisting and remixing elements of traditional verse, participatory theater, and popular culture. To develop writing and performance skills, and to deeply understand selection of poets and performing artists who have shaped spoken word as known today, investigation of aesthetics and political movements of their time through critical essays and poetry from range of influential movements. P/NP or letter grading.

**120. Selected Topics in Cultural Studies (4)** Lecture, three hours. Designed for juniors/seniors. Selected topics in interdisciplinary study of arts and performance in cultural and historical context. Consult Schedule of Classes for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**121. Ethnography and Performance (4)** Lecture, four hours; outside study, eight hours. Survey of some ways that ethnography and performance interrelate, as well as development of some preliminary approaches to effectively document performance events. Reading of ethnographies of performances, as well as consideration of how performances can work ethnographically. P/NP or letter grading.

**122. Healing across Cultures (5)** Lecture, two and one half hours; discussion, one hour. Examination of multiple traditions of healing as recorded across cultures, raising questions about continued vitality and comparisons to allopathic medicine. Study driven by theory (why people heal differently) and praxis (how things are done differently when body or health conceived differently). Broadens thinking about body, health, curing, and performances of healing (as acts and spectacles). Students draw from and contribute to Archive of Healing as database and practical project. Consideration of questions such as how cultural assumptions affect individual's options for seeking healing; what is dynamic between individual and community health; how changes in conceptions of body affect healing practices in various cultures; how image of and approach to health varies across culture; how healing has been studied previously and new lines of inquiry; if methods of healing are available to everyone regardless of cultural histories of community protocols. Letter grading.

**123. Race, Nation, and Media Histories (4)** Seminar, three hours. Examination of the historical and technological developments of various media and their role in American society and culture. Critical of how history has been written, students must be attuned to the technological and sociocultural contexts of various media that include photography, cinema, and television. Through this history, examination of how different media technologies have contributed and shaped imaginings of nation and Americanness, and how artists have responded to this history. Analysis of how media and collective memory operate in tandem to shape understanding of the past. Readings of media history as a

simultaneous history of the U.S., race, identity, and culture, while being attentive to the dynamics of power and narration within the writing of history itself. P/NP or letter grading.

**124. Introduction to Field-Based Research Methods (5)** Lecture, three hours. Introduction to methods, techniques, and issues in conducting field-based research, including nature, uses, and limitations of major data-gathering procedures, ethical concerns, sampling, checks and controls, teamwork, interventions, and results as not only tangible and impersonal outcomes of inquiry but also personal and intangible. Through readings, discussion, and hands-on exercises, students learn how to plan fieldwork projects and write proposals, prepare consent forms and deal with ethical issues, observe behavior, construct questionnaires, interview, use audiovisual documentation, and manage and present data. P/NP or letter grading.

**125A. Beyond Mexican Mural: Beginning Muralism and Community Development (4)** (Same as Art M186A and Chicana/o and Central American Studies M186A.) Studio/lecture, four hours. Corequisite: course M125AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

**125AL. Beyond Mexican Mural: Beginning Muralism and Community Laboratory (4)** (Same as Art M186AL and Chicana/o and Central American Studies M186AL.) Laboratory, four hours. Corequisite: course M125A. Course M125AL is requisite to M125BL, which is requisite to M125CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**125B. Beyond Mexican Mural: Intermediate Muralism and Community Development (4)** (Same as Art M186B and Chicana/o and Central American Studies M186B.) Studio/lecture, four hours. Requisites: courses M125A, M125AL. Corequisite: course M125BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

**125BL. Beyond Mexican Mural: Intermediate Muralism and Community Laboratory (4)** (Same as Art M186BL and Chicana/o and Central American Studies M186BL.) Laboratory, four hours. Requisites: courses M125A, M125AL. Corequisite: course M125B. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**125C. Beyond Mexican Mural: Advanced Muralism and Community Development (4)** (Same as Art M186C and Chicana/o and Central American Studies M186C.) Studio/lecture, six hours. Requisites: courses M125B, M125BL. Corequisite: course M125CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

**125CL. Beyond Mexican Mural: Advanced Muralism and Community Laboratory (2)** (Same as Art M186CL and Chicana/o and Central American Studies M186CL.) Laboratory, two hours. Requisite: course M125BL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading.

**126. Whose Monument Where: Course on Public Art (4)** (Same as Art M185 and Chicana/o and Central American Studies M185.) Lecture, four hours. Recommended corequisite: course M125A, M125B, or M125C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook

in urban space issues such as who is public, what is public space at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

**128. Chicana Art and Artists (4)** (Same as Art M184 and Chicana/o and Central American Studies M175.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

**C129. Food Customs and Symbolism (4)** Lecture, three hours. Designed for juniors/seniors. Introduction to foodways, with particular attention to customs and symbolism in America. Topics include sensory realm, child rearing practices, foodsharing, food and identity, food and its emotional significance, aversions and taboos, advertising, changing food habits, and American diet. Concurrently scheduled with course C229. P/NP or letter grading.

**132. Narrative and Oral Performance (4)** Lecture, four hours. Survey of concepts of story as text versus narrating as oral performance, studies of individual narrators, how stories are composed in performance, interaction of narrator and audience, how place and experience become embodied in narratives, modes of representing oral narrating, and politics of stories and oral performance. P/NP or letter grading.

**133. Textiles of World (4)** Lecture, four hours; discussion, one hour; laboratory, one hour. How cloth and clothing was and continues to be hand-woven in indigenous societies. Use of textiles from Fowler Museum collection to coordinate hands-on experience with cultural history. May be repeated twice for credit. P/NP or letter grading.

**135. Women of Color and Social Movements (5)** Seminar, three hours. Survey of the participation of women, trans women, and femmes of color (WTFC) in social movements for social justice. Examination of the roles of WTFC as grassroots activists, leaders, and visionary thinkers in those movements, and exploration of the construction of their political identity as a basis for contemporary organizing for social change building movements for justice. Through discussion, using readings and films as foundation, examination of the emergence and effectiveness of social movements for gender and racial justice. Examination of the experiences of WTFC in class struggles; labor movements; immigrant rights; disability justice; lesbian, gay, bisexual, transgender, and queer equality; and contact with the criminal legal system and incarceration. Exploration of how intersectionality impacts organizing and strategies for actualizing social change. Letter grading.

**C138. American Indian Arts in Performance (4)** Seminar, four hours. Acquisition of awareness and sensitivity to dynamic contexts within Native American worlds of performance and material culture and development of ability to focus on them and learn to conduct research on them. Examination of wide range of American Indian art and craft traditions within fullest possible range of such contexts, with performance given its most generous definition. Study of spectrum of genres, including architecture, social and dance regalia, masks, and utilitarian material culture, to investigate how such items play their part and come alive through movement, sound, spoken word, silence, and even dreams and visions. Concurrently scheduled with course C238. P/NP or letter grading.

**C139. Afro-Caribbean Ritual Arts (4)** Lecture, three hours. Designed for juniors/seniors. Introduction to diaspora African religions, with particular attention to Caribbean culture. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course C239. P/NP or letter grading.

**CM140XP. Healing, Ritual, and Transformation (4)** (Formerly numbered CM140.) (Same as Gender Studies CM143XP) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Examination of how various cultures think of health and wellness, not only individually but collectively. Exploration of structural inequalities within health care and medical sciences. Students are required to contribute weekly to service learning component, working with individuals and organizations in fields of health and wellness including healers, non-profits, and organizations working for social justice. May be concurrently scheduled with CM240XP. Letter grading.

**C142. Myth and Ritual (4)** Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Myths make sense of world and its peoples, purposes, and places. Rituals embody and activate myths through dramatic transformative devices. Concurrently scheduled with course C242. P/NP or letter grading.

**143B. Introduction to Museology: Museum Exhibitions and Education (5)** Lecture, six hours. Conceptual development of exhibitions and formulation of educational and other goals for specified audiences. Design considerations, media applications, and installation process. P/NP or letter grading.

**144. Make Art/Stop AIDS (5)** Lecture, four hours; studio, two hours. Can arts save lives? That is central question posed here in relation to global AIDS epidemic. Working in close connection with public health and epidemiology, ex-



ploration of arts as powerfully effective tool in AIDS prevention and treatment efforts. Review of literature of AIDS cultural analysis that emerged in late 1980s in U.S. and application of that literature to international hot spots such as India, China, South Africa, and Brazil. Collaborative theory-in-action projects. P/NP or letter grading.

**C145. Curating Cultures (4)** Lecture, three hours. Exploration of poetics and politics of exhibiting non-Western arts and cultures. Series of provocative case studies with special guest speakers addressing themes in curatorial theory and practice. Concurrently scheduled with course C245. P/NP or letter grading.

**C146. Politics of Performance (4)** Seminar, four hours; outside study, eight hours. Designed for juniors/seniors. Opportunity to reflect on artists and intellectuals as cultural workers operating in domains of ideology, aesthetics, and theory. Analysis of such keywords as ideology, aesthetics, theory, art, politics, intervention, intellectuals, and artists. Concurrently scheduled with course C246. P/NP or letter grading.

**C150. Critical Ethnographies (5)** Lecture, three hours. Enforced requisite: course 20 or 33. Survey of major tropes and rhetorical strategies to explicitly locate ethnographic method as key component of cross-cultural understanding. Examination of categorical notions of insider and outsider while also developing various perspectives on performed acts of identity formation. Concurrently schedule with course C250. P/NP or letter grading.

**C151. Ethnography of Religions (4)** Lecture, three hours. Religions are cultural systems helping people to cope with misfortune, deal with death, and find fulfillment in life. Case studies reveal commonalities across cultures as cosmologies define moral being in world, divination determines causes of difficulty, spirit mediumship embodies divine intervention, and sacred arts render deities tangible. Nonjudgmental comparative investigation stressing conversation. Concurrently scheduled with course C251. P/NP or letter grading.

**C152. Visual Cultures (4)** Lecture, three hours. How are ways of seeing constructed through culture, gender, religion, class, and nation? Theories and case studies from around world permit understanding of social processes through which gaze is determined and image economies negotiated. Topics include scopie regimes, aesthetics of streamlined design, and visibility and liberation. Concurrently scheduled with course C252. P/NP or letter grading.

**C158. Theorizing Arts Activism (4)** Seminar, three hours. Historicizing and theorizing of arts activism to provide context for concerted analysis, creation, and protest. Readings include theoretical texts and current performance histories. Consideration of one particular activist project, with focus on ongoing activism sponsored by UCLA Art and Global Health Center. Arts activist projects organized by seminar members supported and encouraged. Concurrently scheduled with course C258. P/NP or letter grading.

**C159. Art and Global Health (4)** Seminar, three hours. Exploration of interface of arts- and health-based methodologies in pursuit of improved health outcomes, using examples from international projects created and supported by UCLA Art and Global Health Center. Readings include texts by artists and arts scholars and articles from public health and medical literature. Seminar members propose their own arts-based health promotion interventions. Concurrently scheduled with course C259. P/NP or letter grading.

**160. Performing Sexual Health: UCLA Sex Squad (4)** Seminar, three hours. Exploration of activist sexual health education theater as it has been used both locally and globally. Examination specifically of how humor, personal narrative, and nonjudgmental pro-sex approaches have been utilized to open empowering and educational dialogues about sexual health by and for diverse range of communities. Intensive training on sex, sexuality, HIV/AIDS, and powerful history of artists' interventions to open urgent dialogues on these taboo topics. May be repeated for maximum of 12 units. P/NP or letter grading.

**CM168. Art-Making beyond the Campus (4)** (Same as Dance CM168.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course CM268. P/NP or letter grading.

**174A. Projects in World Arts and Cultures (2)** Laboratory, four hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit. P/NP or letter grading.

**174B. Projects in World Arts and Cultures (4)** Laboratory, six hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit. P/NP or letter grading.

**177XP. Taking Action: Arts Practice and Community Service (4)** (Formerly numbered 177SL.) Seminar, four hours; outside study, eight hours. Enforced requisite: course 103. Designed for juniors/seniors. Application of training in world arts and cultures through service projects designed by students in col-

laboration with selected community organizations and institutions. Reflection on impact of service on communities and theories. May be repeated once for credit. P/NP or letter grading.

**178. Advanced Private Instruction in World Arts and Cultures (2 to 8)** Studio, three to 12 hours. Designed for juniors/seniors. Private or semiprivate instruction in one world arts practice with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. P/NP grading.

**179. Food Activism in Los Angeles: Narrating Pasts, Imagining Futures (4)** (Same as Food Studies M179.) Lecture, two hours; discussion, two hours. Introduction to history and praxis of local interventions into food insecurity and food oppression, such as community gardens, pop-up markets, and care farms. Through ethnographic and oral history methodologies, students learn how food activists organize themselves, and mobilize creativity to counteract injustice. Focus on relationships between food access, food oppression, food politics, and food ethics; and social histories of race, class, urban planning, and housing discrimination. P/NP or letter grading.

**C180. Variable Topics in Video Production/Practice (4)** Lecture, two hours; laboratory, two hours. Enforced requisite: course 80. Training in low-budget and independent video and documentary practice as research tool. Visual ethnography combined with experimental film. Introduction to history, ethics, and aesthetics of documenting subjects such as culture, performance, and dance among range of forms for bodily expression and experience. Film and documentary theory, ethnography, and phenomenology used to create innovative and critical forms of visual documentation. Skills include cinematography, sound recording, interviews, and digital editing. May be repeated once for credit. Concurrently scheduled with course C280. Letter grading.

**181. Ethnographic Film (4)** Lecture, four hours. Survey of ethnographic film and video, with focus on studies of expressive culture. Emphasis on critical and comparative approaches to visual study of culture, community, and arts. P/NP or letter grading.

**C182. Film and Feminism (5)** Lecture, three hours. Enforced requisite: course 104. Designed for juniors/seniors. Introduction to feminist film theory to develop skills for feminist interpretations and analysis of films from classical and postclassical Hollywood cinema, experimental film, and Indian cinema. Examination of psychoanalytical feminist, postfeminist film, and postcolonial theories. Concurrently scheduled with course C282. P/NP or letter grading.

**C184. Documentary: Theories and Approaches (5)** Lecture, three hours. Designed for juniors/seniors. Documentary practices—early actualities, city symphonies, observational cinema, avant garde, and self-reflexive films—to introduce complexity and creativity at heart of this form. Key theories and approaches of documentary film. Analysis of how performativity, subjectivity, and ideology percolate documentary aesthetics and inform cinematographic, audiographic, and editorial decisions. Concurrently scheduled with course C284. P/NP or letter grading.

**185. Junior-Year Proposal (1)** Lecture, 90 minutes; outside study, 90 minutes. Limited to World Arts and Cultures majors. Planning and execution of proposal (either senior focus or senior honors project) for senior-year study, with attention to exploring resources of department and University as whole. May be repeated once for credit. P/NP grading.

**186A. Senior Praxis Projects in World Arts and Cultures (5)** Lecture, four hours; outside study, 11 hours. Course 186A is requisite to 186B. Limited to senior World Arts and Cultures majors. Application of concepts and content from interdisciplinary major to individual projects. Methodologies may include critical, comparative, ethnographic, and performance approaches. Lecture/seminar format with World Arts and Cultures faculty during first term; faculty-directed presentations of individual projects during second term. Letter grading.

**186B. Senior Praxis Projects in World Arts and Cultures (5)** Lecture, four hours; outside study, 11 hours. Requisite: course 186A. Limited to senior World Arts and Cultures majors. Application of concepts and content from interdisciplinary major to individual projects. Methodologies may include critical, comparative, ethnographic, and performance approaches. Faculty-directed presentations of individual projects during second term. Letter grading.

**187. Indigenous Film (5)** (Same as American Indian Studies M186.) Lecture, four hours; discussion, one hour. Introduction to study of indigenous filmic images and representations, with focus on selected ethnographic, documentary, animated, and feature films ranging from 1920 to present. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**195. Community or Corporate Internships in World Arts and Cultures (2 to 4)** Tutorial, six hours. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research in World Arts and Cultures (2 to 5)** Tutorial, two hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 10 units. Individual contract required. P/NP or letter grading.

## Graduate

**200. Theories of Culture (4)** Seminar, three hours; outside study, nine hours. Introduction to history of culture concept in arts, humanities, and social sciences. Analysis of contemporary debates concerning ownership and use of word culture, and critical elucidation of study of culture. S/U or letter grading.

**201. Theories of Performance (4)** Seminar, three hours; outside study, nine hours. Close reading and analysis of classic and contemporary studies of performance and related aesthetic practices. Familiarization with ways in which performance is defined and deployed by scholars working in disciplines of anthropology, dance, folklore, linguistics, literature, musicology, performance studies, philosophy, sociology, and theater. S/U or letter grading.

**202. Research Methodologies (4)** Seminar, three hours; outside study, nine hours. Hands-on course designed to help students develop understanding of many developed qualitative research methods and designs they encounter in their work. Identification and creation of research problems, development of designs, actual data collection, and analysis procedures to address those problems. S/U or letter grading.

**203. Proseminar: Dance Studies (4)** Seminar, three hours; outside study, nine hours. Survey of theoretical issues and problems in study of dance and body movement in cultural, social, and historical context. S/U or letter grading.

**204. Theories of Corporeality (4)** Seminar, three hours; outside study, nine hours. Cross-cultural and interdisciplinary perspectives on human body. Topics include representations of body, body symbolism, embodiment of identity (including gender, race, ethnicity, and class identities), and analysis of dance and other somatic modes of performance. S/U or letter grading.

**207. Ethnography of Performance (4)** Seminar, three hours; outside study, nine hours. Survey of methods and methodological issues in ethnographic study of performance in cultural context. Field documentation, participant observation, oral history and interview techniques, performative dimensions of ethnographic research, ethics, and politics of ethnographic representation. S/U or letter grading.

**210. Ethnography of and as Colonialism (4)** Seminar, three hours. Beginning with 1550 debates over Indian humanity and ranging to contemporary scholarship about and by indigenous peoples, focus on intersections of writing, colonialism, violence, and historiography in Americas. Exploration of relationship between 16th-century reasoning about race and postmillennial, Western, and academic practices of writing history. Development of critical stance on utility of postcolonial theories as such perspectives bear on anthropological and historical studies of indigenous religiosity. Regions include southwest Columbia, Orinoco Delta in Venezuela, Valley of Mexico, and several examples throughout U.S. southwest, plains, and northeast. S/U or letter grading.

**CM213B. Legislative Theater for Race and Gender Justice (5)** (Same as African American Studies CM213B.) Lecture, three hours; discussion, one hour (when scheduled). Exploration and application of range of interactive methods and arts-based strategies with participants from UCLA and broader

Los Angeles community in order to research and influence public policy and legislative change. Students and campus partners create and perform legislative theater addressing issues of race, gender, and criminal justice system. Critical texts, collaborative work, and creative methods are used to engage perspectives on justice. Analysis of diverse and growing body of work on systems of justice through research, writing, workshops, performances, and critiques of own original writings and performances developed in response to visiting scholars and community partners. Concurrently scheduled with course CM113B. S/U or letter grading.

**216. Analyzing Narrative and Oral Performance (5)** Lecture, four hours. Designed for graduate students. Exploration of ways of documenting individual narrators and interpreting their styles and repertoires; how narrators conceptualize and perform narrative discourse, impact of audience and situated event on both narrating and story, how experiences and values are communicated through narrating, modes of representing oral narrating, and politics of narrative and oral performance. S/U or letter grading.

**220. Seminar: Culture and Performance (4)** Seminar, three hours; outside study, nine hours. Designed for graduate students. Variable topics in interdisciplinary study of expressive culture, arts, and performance in social and historical context. May be repeated for credit with topic change. S/U or letter grading.

**C229. Food Customs and Symbolism (4)** Lecture, three hours. Designed for graduate students. Introduction to foodways, with particular attention to customs and symbolism in America. Topics include sensory realm, child rearing practices, foodsharing, food and identity, food and its emotional significance, aversions and taboos, advertising, changing food habits, and American diet. Concurrently scheduled with course C129. S/U or letter grading.

**C238. American Indian Arts in Performance (4)** Seminar, four hours. Acquisition of awareness and sensitivity to dynamic contexts within Native American worlds of performance and material culture and development of ability to focus on them and learn to conduct research on them. Examination of wide range of American Indian art and craft traditions within fullest possible range of such contexts, with performance given its most generous definition. Study of spectrum of genres, including architecture, social and dance regalia, masks, and utilitarian material culture, to investigate how such items play their part and come alive through movement, sound, spoken word, silence, and even dreams and visions. Concurrently scheduled with course C138. S/U or letter grading.

**C239. Afro-Caribbean Ritual Arts (4)** Lecture, three hours. Designed for graduate students. Introduction to diaspora African religions, with particular attention to Caribbean culture. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course C139. S/U or letter grading.

**CM240XP. Healing, Ritual, and Transformation (4)** (Formerly numbered CM240.) (Same as Gender Studies CM243XP.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Examination of how various cultures think of health and wellness, not only individually but collectively. Exploration of structural inequalities within health care and medical sciences. Students are required to contribute weekly to service learning component, working with individuals and organizations in fields of health and wellness including healers, non-profits, and organizations working for social justice. May be concurrently scheduled with CM140XP. Letter grading.

**C242. Myth and Ritual (4)** Lecture, four hours; outside study, eight hours. Designed for graduate students. Myths make sense of world and its peoples, purposes, and places. Rituals embody and activate myths through dramatic transformative devices. Concurrently scheduled with course C142. S/U or letter grading.

**C245. Curating Cultures (4)** Lecture, three hours. Exploration of poetics and politics of exhibiting non-Western arts and cultures. Series of provocative case studies with special guest speakers addressing themes in curatorial theory and practice. Concurrently scheduled with course C145. S/U or letter grading.

**C246. Politics of Performance (4)** Seminar, four hours; outside study, eight hours. Designed for graduate students. Opportunity to reflect on artists and intellectuals as cultural workers operating in domains of ideology, aesthetics, and theory. Analysis of such keywords as ideology, aesthetics, theory, art, politics, intervention, intellectuals, and artists. Concurrently scheduled with course C146. S/U or letter grading.

**C250. Critical Ethnographies (5)** Lecture, three hours. Enforced requisite: course 20 or 33. Survey of major tropes and rhetorical strategies to explicitly locate ethnographic method as key component of cross-cultural understanding. Examination of categorical notions of insider and outsider while also developing various perspectives on performed acts of identity formation. Concurrently scheduled with course C150. S/U or letter grading.

**C251. Ethnography of Religions (4)** Lecture, three hours. Religions are cultural systems helping people to cope with misfortune, deal with death, and find fulfillment in life. Case studies reveal commonalities across cultures as cosmologies define moral being in world, divination determines causes of difficulty, spirit mediumship embodies divine intervention, and sacred arts render deities tangible. Nonjudgmental comparative investigation stressing conversation. Concurrently scheduled with course C151. S/U or letter grading.

**C252. Visual Cultures (4)** Lecture, three hours. How are ways of seeing constructed through culture, gender, religion, class, and nation? Theories and case studies from around world permit understanding of social processes through which gaze is determined and image economies negotiated. Topics include scopoc regimes, aesthetics of streamlined design, and visibility and liberation. Concurrently scheduled with course C152. S/U or letter grading.

**C258. Theorizing Arts Activism (4)** Seminar, three hours. Historicizing and theorizing of arts activism to provide context for concerted analysis, creation, and protest. Readings include theoretical texts and current performance histories. Consideration of one particular activist project, with focus on ongoing activism sponsored by UCLA Art and Global Health Center. Arts activist projects organized by seminar members supported and encouraged. Concurrently scheduled with course C158. S/U or letter grading.

**C259. Art and Global Health (4)** Seminar, three hours. Exploration of interface of arts- and health-based methodologies in pursuit of improved health outcomes, using examples from international projects created and supported by UCLA Art and Global Health Center. Readings include texts by artists and arts scholars and articles from public health and medical literature. Seminar members propose their own arts-based health promotion interventions. Concurrently scheduled with course C159. S/U or letter grading.

**CM268. Art-Making beyond the Campus (4)** (Same as Dance CM268.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course CM168. S/U or letter grading.

**C280. Variable Topics in Video Production/Practice (4)** Lecture, two hours; laboratory, two hours. Enforced requisite: course 80. Training in low-budget and independent video and documentary practice as research tool. Visual ethnography combined with experimental film. Introduction to history, ethics, and aesthetics of documenting subjects such as culture, performance, and dance among range of forms for bodily expression and experience. Film and documentary theory, ethnography, and phenomenology used to create innovative and critical forms of visual documentation. Skills include cinematography, sound recording, interviews, and digital editing. May be repeated once for credit. Concurrently scheduled with course C180. Letter grading.

**C282. Film and Feminism (5)** Lecture, three hours. Enforced requisite: course 104. Designed for graduate students. Introduction to feminist film theory to develop skills for feminist interpretations and analysis of films from classical and postclassical Hollywood cinema, experimental film, and Indian cinema. Examination of psychoanalytical feminist, postfeminist film, and postcolonial theories. Concurrently scheduled with course C182. S/U or letter grading.

**C284. Documentary: Theories and Approaches (5)** Lecture, three hours. Designed for graduate students. Documentary practices—early actualities, city symphonies, observational cinema, avant garde, and self-reflexive films—to introduce complexity and creativity at heart of this form. Key theories and ap-

proaches of documentary film. Analysis of how performativity, subjectivity, and ideology percolate documentary aesthetics and inform cinematographic, audiographic, and editorial decisions. Concurrently scheduled with course C184. S/U or letter grading.

**400. Directed Professional Activities (2 to 8)** Lecture, to be arranged. Directed projects in professional editing, bibliography, filmography, videography, conference and festival direction, and other professional activities. May not be applied toward MA degree requirements. May be repeated. S/U grading.

**478. Advanced Private Instruction in World Arts and Cultures (2 to 8)** Studio, three to 12 hours; outside study, three to 12 hours. Private or semiprivate instruction with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. S/U grading.

**480. Seminar: Research Topics (2 to 4)** Seminar, three hours; outside study, three to nine hours. Forum in which faculty, students, and visitors make presentations and obtain feedback on research being planned, conducted, or recently completed. Students required to make minimum of one presentation each term they are enrolled for credit. May be repeated for maximum of 8 units. S/U grading.

**490. Projects in Choreography and Performance (2 to 8)** Tutorial, one three-hour rehearsal per unit per week minimum. Creation, casting, and rehearsing of culminating concert, reflecting professional achievement in choreography or performance, in first term. In second term, direction of on-stage rehearsals for culminating concert by each student leading to fully staged performance. May be repeated for maximum of 16 units. S/U or letter grading.

**495. Teaching Assistant Seminar (2)** Seminar, one hour; laboratory, three hours. Required of all World Arts and Cultures Department teaching assistants. Lectures, discussion, readings, and practice teaching. May be repeated once for credit. S/U grading.

**496. Teacher Preparation in World Arts and Cultures (2)** Seminar, two hours. Directed work in preparation of course syllabi and discussion of topics relevant to developing teaching skills. Fundamental principles and methods with which to design course syllabi and gather resources for courses. Topics include development of teaching philosophy, evaluating/selecting course content, teaching methodologies, assessment/evaluation/grading practices, and consideration of practical, administrative, and ethical issues. Students meet with instructor to review their specific needs as they progress in development and elaboration of course plans. Microteaching sessions provide context for applying concepts and principles discussed. S/U grading.

**596A. Directed Individual Study or Research (2 to 8)** Tutorial, to be arranged. S/U or letter grading.

**596R. Directed Study or Research in Hospital or Clinic (2 to 8)** Tutorial, to be arranged. S/U grading.

**597. Preparation for Master's Comprehensive Examination or PhD Qualifying Examination (2 to 8)** Tutorial, to be arranged. Preparation for MA or MFA comprehensive examination or PhD qualifying examination. S/U grading.

**598. Research for and Preparation of Master's Thesis (2 to 8)** Tutorial, to be arranged. Research for and preparation of MA or MFA thesis. S/U grading.

**599. Research for and Preparation of PhD Dissertation (2 to 12)** Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. May be repeated for credit. S/U grading.

# Writing Programs

## English Composition Courses

### Lower Division

**1. Introduction to University Discourse (4)** Lecture, four hours. Requisite: proficiency demonstrated on Analytical Writing Placement Examination. Introduction to college-level critical reading and academic writing. Engagement in substantial and regular writing and revision assignments through practicing and building on reading, writing, and rhetorical skills. Emphasis on revision, developing syntactic variety and academic vocabulary, and editing for grammar and style. Completion of course with grade of C or better is requisite to course 2. Letter grading.

**1A. Intermediate Composition for Multilingual Students (4)** Lecture, five hours. Enforced requisite: proficiency demonstrated on Analytical Writing Placement Examination (first-year students) or English as a Second Language Placement Examination (transfer students). Development of academic writing skills with focus on reading comprehension, vocabulary development, and fundamental composition techniques, with additional work on grammar and editing. Letter grading.

**1B. High-Intermediate Composition for Multilingual Students (4)** Lecture, five hours. Requisite: proficiency demonstrated on Analytical Writing Placement Examination (first-year students) or English as a Second Language Placement Examination (transfer students) (enforced) or course 1A (C or better). Development of academic writing skills with focus on synthesizing sources, strategies of argumentation, academic reading, and vocabulary, with additional work on grammar and editing. Letter grading.

**1C. Advanced Composition for Multilingual Transfer Students (5)** Lecture, four hours. Requisite: proficiency demonstrated on English as a Second Language Placement Examination (enforced) or course 1B (C or better). Development of academic writing skills with focus on writing process, grammatical structures key to clear and effective style, and practice with major forms of academic writing, with additional work on critical analysis of readings. Completion of course with grade of C or better satisfies English as a Second Language requirement. Letter grading.

**2. Approaches to University Writing (5)** Lecture, four hours. Requisite: proficiency demonstrated on Analytical Writing Placement Examination (enforced) or course A (C or better). Second course in university-level discourse, with analysis and critique of university-level texts. Emphasis on revision for argumentative coherence and effective style. Completion of course with grade of C or better satisfies Entry-Level Writing requirement. Letter grading.

**2I. Approaches to University Writing for Multilingual Students (5)** Lecture, six hours. Requisite: demonstrated proficiency on Analytical Writing Placement Examination (enforced) or course 1B (C or better). Second course in university-level discourse, with analysis and critique of university-level texts. Emphasis on strategies for developing coherent and well-argued pieces of academic writing and for achieving effective and clear style in academic prose. Completion of course with grade of C or better satisfies Entry-Level Writing and English as a Second Language requirements. Letter grading.

**3. English Composition, Rhetoric, and Language (5)** Lecture, three hours. Enforced requisite: satisfaction of Entry-Level Writing requirement or course 2 or 2I (C or better). Not open for credit to students with credit for course 3D, 3DS, 3E, or 3SL. Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of minimum of 20 pages of revised text. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

**3D. English Composition, Rhetoric, and Language (5)** Lecture, three hours. Enforced requisite: satisfaction of Entry-Level Writing requirement or course 2 or 2I (C or better). Not open for credit to students with credit for course 3, 3DS, 3E, or 3SL. Rhetorical techniques and skillful argument, with focus on diversity and inclusiveness. Analysis of varieties of academic texts and writing of minimum of 20 pages of revised prose. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

**3DX. English Composition, Rhetoric, and Language (Service Learning) (5)** (Formerly numbered 3DS.) Lecture, three hours. Enforced requisite: satisfaction of Entry-Level Writing requirement or course 2 or 2I (C or better). Investigation of difference and diversity through community-engagement, rhetorical techniques, and skillful argumentation that critically examine structures and institutions that promote asymmetrical power relations as well as responses of diverse groups to these inequalities. Off-campus/on-site community-engagement component is integrated with course materials and units, and it is

sustained across the quarter, connecting community engagement experiences with academic learning through critical reflections, analytical writing, and research. Students write a minimum of 20 pages of revised prose that engages and responds to the complexities of the diverse groups under examination. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

**3E. English Composition, Rhetoric, and Language For Engineers (5)** Lecture, three hours. Enforced requisite: satisfaction of Entry-Level Writing requirement or course 2 or 2I (C or better). Not open for credit to students with credit for course 3, 3D, 3DS, or 3SL. Rhetorical techniques and skillful expository writing. Analysis of varieties of academic prose, including technical writing, and integration of multimodal elements. Minimum of 20 pages of revised text. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

**4. Writing Workshop for Multilingual Students (2)** Tutorial, three hours. Requisite: proficiency demonstrated on Analytical Writing Placement Examination or informed self-placement administered through Writing Programs. Corequisite: course 1 or 2. Multilingual students gain linguistic and cultural awareness and skills that complement courses satisfying Entry-Level Writing requirement. May be repeated once for credit. P/NP grading.

**5W. Literature, Culture, and Critical Inquiry (5)** Lecture, four hours. Enforced requisite: course 3. Use of analysis of literary works within cultural context to engage students in critical thinking and writing about issues important to academic inquiry and responsible citizenship. Minimum of 15 to 20 pages of revised text required in addition to regular informal writing exercises. Satisfies Writing II requirement. Letter grading.

**6W. Language, Culture, and Discourse (5)** Lecture, four hours. Enforced requisite: course 3. Study of structure and use of English and how it reflects social structure and cultural values. Readings in linguistic analysis, language acquisition, sociolinguistics, and pragmatics provide foundation as students analyze authentic language as it is used in private and public contexts. Minimum of 15 to 20 pages of revised writing required. Satisfies Writing II requirement. Letter grading.

**7W. Media Culture and Critical Inquiry (5)** Lecture, four hours. Enforced requisite: course 3. Provides students with necessary critical framework and vocabulary for reading and interpreting visual, aural, dramatic, and/or digital representations and performances. Analysis of diverse multimedia texts to think critically about the politics of representation and the construction of individual and collective identities. Focus on developing, drafting, and revising written and multimodal compositions. Minimum of 15 pages of revised text required in addition to regular writing exercises. Satisfies Writing II requirement. Letter grading.

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**50. Writing Workshop (2)** Lecture, five hours. Designed for any students who have not yet enrolled in their first full term at UCLA. Introduction to demands of university writing and often unstated conventions that govern it. Writing techniques developed to address specific writing tasks such as timed examination, application essay, effective e-mail, and college paper. Offered in summer only. P/NP or letter grading.

**51. Writing Workshop (2)** Lecture, two hours. Limited to students admitted to one UC campus who have not completed their first year of college coursework. Introduction to demands of university writing and often unstated conventions that govern it. Addresses not only specific writing tasks such as timed examinations, effective e-mails, and college papers, but also broad communication concerns such as classroom participation and oral presentations. P/NP grading.

**52. Writing and Critical Thinking for Pre-College Scholars (4)** Lecture, 10 hours. Limited to students in VIP Scholars Program at UCLA. Introduction to demands of university writing, including research writing, with special focus on challenging students to think critically about world around them and their place in it within social justice framework. Offered in summer only. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater

depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

## Upper Division

**100W. Interdisciplinary Academic Writing (5)** Lecture, four hours. Enforced requisite: course 3 or 3H or English as a Second Language 36. Designed for sophomores/juniors/seniors. Course in academic writing suitable for both lower- and upper-division students that helps them develop academic papers with range of complexity and length. Focus on conventions of academic prose and genres across disciplines. Written assignments include common forms of academic writing such as argument, research paper, and/or critical essay. Satisfies Writing II requirement. Letter grading.

**100WD. Interdisciplinary Academic Writing (5)** Lecture, four hours. Requisite: course 3, 3D, 3DS, or 3E. Course in academic writing suitable for both lower- and upper-division students that helps them develop academic papers with range of complexity and length. Focus on conventions of academic prose and genres across disciplines. Written assignments include common forms of academic writing such as argument, research paper, and/or critical essay. Investigation of difference and diversity through writing and rhetoric. Critical examination of structures and institutions that promote asymmetrical power relations, and responses of diverse groups to these inequalities. Original argumentation that engages with difference and response to complexities of diverse societies. Satisfies Writing II requirement. Letter grading.

**110. Writing Adjunct (4)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3 or 3H. Students must be concurrently enrolled in course offered in conjunction with course 110 (consult Schedule of Classes for courses so designated). Writing assignments use materials from adjunct course and reflect and develop analytic writing skills needed in that course. May be repeated for credit with consent of instructor. P/NP or letter grading.

**120A. Language Study for Teachers: Elementary School (4)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Survey of topics in English linguistics of special interest to elementary school teachers. Subjects include approaches to English grammar; language acquisition and development; language attitudes; regional and social dialects of American English; bilingual schooling; contribution of English language study to teaching of reading, writing, spelling, and literature. P/NP or letter grading.

**120B. Language Study for Teachers of English: Secondary School (4)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Review of terminology of English grammar and survey of development of modern grammars. Introduction to basic concepts in bilingual and multilingual education, sociolinguistics, dialectology, and stylistics, especially as applied to analysis and evaluation of writing assigned in secondary school. P/NP or letter grading.

**123. Information Literacy and Research Skills (1)** Lecture, one hour. Preparation: satisfaction of Writing I requirement. Designed to help students become information literate, so they know how to identify, locate, critically evaluate, and use print and electronic information effectively and ethically. Closely interwoven with Writing Programs courses that have information/research-related assignments. P/NP or letter grading.

**129A. Academic Writing in Disciplines: Literature (4)** Lecture, four hours. Designed for juniors/seniors. Advanced study of writing conventions in specific disciplinary areas, with focus on analysis and development of writing expertise in common discursive forms, stylistic patterns, and research practices in given discipline. May be taken independently for credit. P/NP or letter grading.

**129B. Academic Writing in Disciplines: Social Sciences (4)** Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Advanced study of writing conventions in specific disciplinary areas, with focus on analysis and development of writing expertise in common discursive forms, stylistic patterns, and research practices in given discipline. May be taken independently for credit. P/NP or letter grading.

**129C. Academic Writing in Disciplines: Physical and Life Sciences (4)** Lecture, four hours. Designed for juniors/seniors. Advanced study of writing conventions in specific disciplinary areas, with focus on analysis and develop-

ment of writing expertise in common discursive forms, stylistic patterns, and research practices in given discipline. May be taken independently for credit. P/NP or letter grading.

**129D. Academic Writing in Disciplines: Fine Arts (4)** Lecture, four hours. Designed for juniors/seniors. Advanced study of writing conventions in specific disciplinary areas, with focus on analysis and development of writing expertise in common discursive forms, stylistic patterns, and research practices in given discipline. May be taken independently for credit. P/NP or letter grading.

**130A. Professional Writing: Digital Writing and Web Literacy (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Emphasis on writing for digital environments such as websites, blogs, newsletters, and social media. Common professional settings for these skills include journalism, political campaigns, Internet marketing, and corporate communication. P/NP or letter grading.

**130B. Professional Writing: Business and Entrepreneurship (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Emphasis on developing written, oral, and visual communication skills for entrepreneurial settings. Common tasks including pitching idea, seeking funding for startup, or promoting product or service. P/NP or letter grading.

**130C. Professional Writing: Science and Technology (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Emphasis on communicating complex technical concepts and scientific research findings in clear and accessible way to non-specialist audiences. P/NP or letter grading.

**130D. Professional Writing: Nonprofits and Public Engagement (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Development of ability to write persuasively and effectively in both non-profit and public sectors. Writing genres include mission and vision statements, grant proposals, public service announcements, and outreach campaigns. P/NP or letter grading.

**130E. Professional Writing: Arts and Entertainment (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Emphasis on the ability to write professionally about creative material and performances in areas such as film, television, theater, music, art/design, podcasts, and video games. Writing genres include critical reviews, recaps, promotional materials, treatments, and profiles. P/NP or letter grading.

**131A. Specialized Writing: Law and Politics (4)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Advanced writing course designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. May be taken independently for credit. P/NP or letter grading.

**131B. Specialized Writing: Business and Social Policy (5)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Advanced writing course designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. May be taken independently for credit. P/NP or letter grading.

**131C. Specialized Writing: Medicine and Public Health (4)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Advanced writing course designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. May be taken independently for credit. P/NP or letter grading.

**131D. Specialized Writing: Media and Communications (4)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Advanced writing course designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. May be taken independently for credit. P/NP or letter grading.

**131E. Specialized Writing: Travel Writing (4)** Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Advanced writing course designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. May be taken independently for credit. P/NP or letter grading.

**132. Variable Topics in Rhetoric and Writing (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Intensive study of rhetoric and writing within one academic or professional context. Consult Schedule of Classes for topic focus in specific term. May be repeated for credit with topic change. P/NP or letter grading.

**132A. Topics in Rhetoric and Writing: Gender and Writing (4)** Lecture, four hours; discussion, one hour. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Study of specific topics in relationship between rhetoric/writing and social or political history. May be taken independently for credit. P/NP or letter grading. English majors who wish to use course to satisfy departmental requisites must take it for letter grade.

**132B. Topics in Rhetoric and Writing: Autobiographical Writing (4)** Lecture, four hours; discussion, one hour. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Study of specific topics in relationship between rhetoric/writing and social or political history. May be taken independently for credit. P/NP or letter grading. English majors who wish to use course to satisfy departmental requisites must take it for letter grade.

**132C. Topics in Rhetoric and Writing: Cultural Studies (4)** Lecture, four hours; discussion, one hour. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Study of specific topics in relationship between rhetoric/writing and social or political history. May be taken independently for credit. P/NP or letter grading. English majors who wish to use course to satisfy departmental requisites must take it for letter grade.

**133. Topics in Writing for Multimedia Environments (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Special topics in professional writing exploring current developments, issues, or debates within art, entertainment, social media, or video game industries. May be repeated for maximum of 10 units. P/NP or letter grading.

**134. Topics in Science Writing (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Special topics in professional writing exploring current issues, developments, or debates within specific field of science or technology. May be repeated for maximum of 10 units. P/NP or letter grading.

**135. Professional Writing: Writing for Audio (5)** (Formerly numbered 130F.) Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Emphasis on writing for listening audiences such as podcasts and radio, building brand awareness to reach them, and engineering clean audio. Common professional settings for these skills include audio journalism, political campaigns, Internet marketing, and corporate communication. P/NP or letter grading.

**136. Practical Writing and Editing (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Focus on developing grammatical precision and rhetorical range in professional writing, combined with experience proofreading and editing one's own writing as well as that of others. P/NP or letter grading.

**137. Writing for Public Speaking (5)** Lecture, four hours. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Emphasis on careful preparation, rehearsal, and delivery of professional presentations including design of effective visuals in variety of multimodal forms. Student performances video-recorded for extensive self, peer, and instructor feedback. P/NP or letter grading.

**138. Topics in Creative Writing (5)** (Same as English M138.) Seminar, three hours. Requisite: course 3 or 3D or 3DS or 3SL. Introductory workshop in genre(s) of instructor choice, that may include mixed genres, playwriting, screenwriting, literary nonfiction, or others. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. May not be used to satisfy workshop requirements for English creative writing concentration. P/NP or letter grading.

**141. Current Methods of Language Teaching (5)** (Same as Linguistics M141.) Lecture, four hours; discussion, one hour. Enforced requisite: Linguistics 20. Survey of theory and practice in teaching second languages, including (1) past and present methods used to teach second languages, (2) current theory and practice underlying skills-based instruction and integrated approaches, and (3) factors that affect second language acquisition and learning. Development of knowledge base in and rational base for design, development, implementation, and evaluation of second language instruction programs. P/NP or letter grading.

**142. Teaching Grammar and Style (4)** Lecture, four hours. Requisite: Linguistics 20. Survey of English language structures and conventions to better understand relationships among forms/structure, meaning, and stylistic effects.

Designed to develop language instructors' ability to explain structures and to articulate nuances of meaning. Exploration of grammar and style in terms of activity design and lesson building. P/NP or letter grading.

**175. Apprenticeship in Composition Tutoring (2)** Seminar, two hours. Enforced requisite: satisfaction of Writing II requirement. Composition Peer Learning Facilitators (PLFs) who work in Undergraduate Writing Center provided with ongoing mentoring in composition and peer learning methodologies. Overview of language, writing, and literacy needs of diverse college-age writers, including developing writers, multilingual writers, and nonnative English-speaking (NNS) writers. Provides opportunity to reflect critically on theoretical and practical frameworks for tutoring to which students have been introduced. PLFs receive guidance in their tutoring process via observations by course instructor and their peers. May be repeated for credit with consent of instructor. P/NP grading.

**180. Research Practice (5)** (Formerly numbered M180.) Lecture, four hours. Advanced workshop designed for juniors and seniors engaged in large-scale research projects in humanities or social sciences. Students hone research, critical reading, and writing skills through class sessions, digital research notebook, and writing workshops. Students practice giving, receiving, and incorporating feedback through peer review, and develop research projects in consultation with colleagues, instructor, and faculty and libraries. Culminates with completion of literature review, academic article, or thesis chapter. P/NP or letter grading.

**185. Professional Writing Capstone (4)** (Same as English M185.) Seminar, four hours. Limited to junior/senior Professional Writing minors. Topical writing workshop on rhetorical strategies useful in written and multimodal genres. Intended to provide students with opportunity for serious engagement with writing project in their minor specialization under close faculty supervision and in constructive writing group. Reading, discussion, oral presentations, rhetorical analysis, and development of professional portfolio. Students develop their capstone projects, including identifying appropriate models, generic expectations, and rhetorical choices. P/NP or letter grading.

**188SA. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to discuss selected USIE seminar topic, conduct preparatory research, and begin preparation of syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SB. Individual Studies for USIE Facilitators (1)** Tutorial, to be arranged. Enforced requisite: course 188SA. Enforced corequisite: Honors Collegium 101E. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor to finalize course syllabus. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**188SC. Individual Studies for USIE Facilitators (2)** Tutorial, to be arranged. Enforced requisite: course 188SB. Limited to junior/senior USIE facilitators. Individual study in regularly scheduled meetings with faculty mentor while facilitating USIE 88S course. Individual contract with faculty mentor required. May not be repeated. Letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**192. Undergraduate Practicum in English: Journals (2)** (Same as English M192.) Seminar, two hours. Training and supervised practicum for undergraduate student editors of campus journals supervised by faculty members in English and/or Writing Programs. May be repeated for credit. P/NP or letter grading.

**195. Community or Corporate Internships in English Composition (4)** Tutorial, to be arranged. Requisites: course 3 or 3H, satisfaction of Writing II requirement. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

**199. Directed Research or Senior Project in English Composition (2 to 4)** Tutorial, to be arranged. Requisite: course 3 or 3H. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

## Graduate

**300. Teaching English (4)** Lecture, four hours. Required of candidates for single subject credential in English. Study of theories of rhetoric, composition, reading, and literature as they apply to secondary school or college English curriculum. S/U or letter grading.

**401. Current Issues in University Writing Pedagogy (4)** Seminar, three hours. Limited to graduate students. Exploration of literature and theories of post-secondary writing pedagogy that may include focus on changing institutional role of writing instruction, multimodal composition, and linguistic/educational diversity. S/U or letter grading.

**402. Writing Pedagogy across Disciplines: Genre and Discourse (4)** Seminar, three hours. Limited to graduate students. Survey of literature on academic writing across curriculum. Examination of writing conventions, genres, and styles in graduate student academic disciplines, with focus on evolving academic discourse in emerging and hybrid areas of inquiry. Development of best practices for adapting writing pedagogy to changes in disciplinary academic discourse, with discussion of challenges for multilingual learners. S/U or letter grading.

**403. Language Pedagogy: Form, Meaning, and Function (4)** Seminar, three hours. Designed for graduate students. Survey of theories and applications of language structures and conventions, with insights from discourse analysis and functional grammar. Designed to develop instructor ability to explain structures and to articulate language-based issues of meaning. Integrates research and successful applications of knowledge for improved language-related instruction and feedback in composition studies. S/U or letter grading.

**404. Diversity and Student-Centered Pedagogy (4)** Seminar, three hours. Limited to graduate students. Survey of literature on heterogeneous classrooms, with focus on diversity of race, socioeconomic status, geographic background, linguistic skills, and academic preparedness. Development of best practices for accommodating diverse student populations and building active inclusive curriculum and classroom environments at university level. S/U or letter grading.

**495A. Teaching Preparation Seminar: Second Language Learners (4)** Seminar, three hours. Limited to graduate students. Required of all English as a second language (ESL) teaching assistants and open to students seeking Graduate Certificate in Writing Pedagogy. Focus on pedagogical issues specifically related to academic reading and composition skills for second language learners, including course design, assessment of student writing, conferencing, and specialized problems that may occur in teaching ESL courses. S/U grading.

**495B. Supervised Teaching of Language Learners (2)** Seminar, two hours. Enforced requisite: course 495A. Required of all English as a second language (ESL) teaching assistants each term they are assigned to teach ESL courses. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching ESL courses. S/U grading.

**495C. Teaching Preparation Seminar: First-Year Composition (4)** Seminar, three hours. Limited to graduate students. Required of all teaching assistants prior to teaching English Composition 3 courses and open to students seeking Graduate Certificate in Writing Pedagogy. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching English Composition 3. S/U grading.

**495D. Supervised Teaching of First-Year Composition (2)** Seminar, two hours. Enforced requisite: course 495C. Required of all teaching assistants who are assigned to English Composition 3 courses. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching English Composition 3. May be repeated for credit. S/U grading.

**495E. Teaching Preparation Seminar: Writing in Disciplines (2)** Seminar, three hours every other week. Limited to graduate students. Required of all teaching assistants for Writing II courses not exempt by appropriate departmental or program training and open to students seeking Graduate Certificate in Writing Pedagogy. Training focused on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary contexts. Practical concerns of creating assignments, marking and grading essays, and conducting peer reviews and conferences. May be repeated for credit. S/U grading.

**495F. Supervised Teaching of Writing in Disciplines (2)** Seminar, two hours. Enforced requisite: course 495E. Required of all teaching assistants for Writing II courses not exempt by appropriate departmental or program training. Mentoring conferences and teaching observations, with focus on student-centered pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary contexts. Practical concerns of creating assignments, marking and grading essays, and conducting peer reviews and conferences. May be repeated for credit. S/U grading.

**495I. Teaching Preparation Seminar: Writing for Engineers (4)** (Same as Engineering M495I.) Seminar, two and one half hours. Limited to graduate students. Required of all teaching assistants for Engineering writing courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

**495J. Supervised Teaching of Writing for Engineers (2)** (Same as Engineering M495J.) Seminar, one hour. Enforced requisite: course M495I. Required of all teaching assistants in their initial term of teaching Engineering writing courses. Mentoring in group and individual meetings. Continued focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

**495K. Teaching Preparation Seminar: Teaching and Writing Pedagogies for Electrical Engineers (2)** (Same as Electrical and Computer Engineering M495.) Seminar, two hours. Limited to graduate electrical engineering students. Required of all departmental teaching assistants (TAs). May be taken concurrently while holding a TA appointment. Seminar on pedagogy and logistics of being a TA with emphasis on student-centered teaching, clear communication, and multimodal teaching and learning. S/U grading.

**495M. Teaching Preparation Seminar: Clusters (2)** Seminar, two hours. Limited to graduate students. Required of all Clusters teaching assistants in their first quarter with Clusters. Training focused on student-centered pedagogy, reflective teaching, composition pedagogy, assessment of student writing, guidance of revision process, and specialized teaching issues that may occur in Clusters context. Practical concerns of lesson planning, discussion leading, responding to and grading essays, and conducting peer reviews and conferences. S/U grading.

**495N. Teaching Preparation: Writing-Intensive Seminar Development (2)** Seminar, two hours. Limited to graduate students. Required of all Clusters teaching assistants in quarter prior to their first Clusters seminar and open to students seeking Graduate Certificate in Writing Pedagogy. Training focused on developing writing-intensive seminar with emphasis on identifying course objectives, choosing appropriate readings, sequencing and scaffolding curriculum, drafting integrated assignments, and foregrounding writing in discipline-specific context. Production of syllabus for seminar that satisfies Writing II requirement. S/U grading.

**495O. Supervised Teaching of Clusters Seminar (2)** Seminar, two hours. Requisite: course 495N. Required of all Clusters teaching assistants teaching their first Clusters seminar. Mentoring conferences and teaching observations, with focus on student-centered pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary and Clusters contexts. Practical concerns of creating assignments, responding to and grading essays, and conducting peer reviews and conferences. May be repeated for credit. S/U grading.

**495P. Teaching Preparation Seminar: Empowering Culturally Diverse Student Writers (2)** Seminar, two hours. Limited to graduate students. Recommended for all teaching assistants planning to teach English composition as part of AAP's summer bridge programs. Focus on pedagogy that serves heterogeneous classrooms, with emphasis on diversity of race, socioeconomic status, citizenship status, and academic preparedness. Practical concerns include lesson planning and professionalization for composition instructors. S/U grading.

**495S. Supervised Summer Teaching of Language and Composition (2)** Seminar, 90 minutes. Requisite: course 495A or 495C. Recommended for all teaching assistants teaching English as a second language, English composition, and Writing II courses during summer. Focus determined on individual basis according to class appointed and may include oral skills pedagogy, composition pedagogy, course design, assessment of student performance, and specialized problems that may occur in intensive summer language and/



or composition courses. Supervision during appointment and mentor meetings and reflection on teaching experience following summer appointment. S/U grading.

**496. Special Projects in Language and Writing Pedagogy (1 to 4)** Tutorial, three hours. Limited to Writing Pedagogy graduate certificate students. Reflective teaching experience, practicum experience, specialized curriculum development project, or independent research project under guidance of faculty mentor. Individual contract required. S/U grading.

**499. Academic Professionalization Colloquium (2)** Colloquium/workshop, three hours every other week. Limited to graduate students. Rotating speakers on topics such as designing digital teaching portfolio, drafting academic/teaching curriculum vitae (CV), writing application letters for academic jobs, and pursuing alternative academic careers. Speaker sessions and panels to be followed by workshops. Revision of application letter, CV, teaching portfolio, or other relevant document to be determined in consultation with colloquium organizer. S/U grading.

## English as a Second Language Courses

### Lower Division

**19. Fiat Lux Freshman Seminars (1)** Seminar, one hour. Discussion of and critical thinking about topics of current intellectual importance, taught by faculty members in their areas of expertise and illuminating many paths of discovery at UCLA. P/NP grading.

**20. Conversation and Fluency (4)** Lecture, four hours. Emphasis on speaking fluently in English by examining rules of conversation, participating actively in class discussions, making group presentations, and completing out-of-class assignments designed to promote interaction with native speakers and familiarize international students with UCLA campus and local community. Offered in summer only. P/NP or letter grading.

**21. Pronunciation (4)** Lecture, four hours. Designed to improve clarity, accuracy, and understanding of spoken English through study and practice of pronunciation features as they occur in real speech, using models from television, movies, and online talks. Emphasis on individualized feedback through audiorecording and videorecording technology. Offered in summer only. P/NP or letter grading.

**22. Public Speaking (4)** Lecture, four hours. Emphasis on making presentations, interacting with audience members, and leading group discussions. Videorecording of student performances to allow students to improve through self and peer evaluation, as well as through individualized instructor feedback. Offered in summer only. P/NP or letter grading.

**23. American Culture through Film (4)** Lecture, four hours. Designed to improve listening comprehension and discussion skills by viewing and analyzing variety of American films. Emphasis on understanding and using idiomatic language, expanding vocabulary, recognizing dialect differences, and reflecting on cultural similarities and differences. Offered in summer only. P/NP or letter grading.

**24. Preparation for American Universities (4)** Lecture, four hours. Designed for international students planning to study at American universities. Students research suitable undergraduate or graduate programs, interview advisers at local universities, and learn to write effective personal statements. Additional focus on academic reading, vocabulary, and speaking skills. Offered in summer only. P/NP or letter grading.

**25. Academic Reading and Writing (4)** Lecture, four hours. Designed to improve reading speed, comprehension, and knowledge of academic writing conventions. Emphasis on synthesizing information from sources, providing proper citations, and avoiding plagiarism. Focus on development of ability to revise and edit one's own writing. Offered in summer only. P/NP or letter grading.

**26. Business Communication: Speaking (4)** Lecture, four hours. Emphasis on giving business and marketing-focused presentations (both individual and group), handling audience questions, and running effective meetings. Videorecording of student performances to allow students to improve through self-evaluation, as well as through individualized instructor feedback. Offered in summer only. P/NP or letter grading.

**27. Business Communication: Writing (4)** Lecture, four hours. Emphasis on writing persuasive texts for diverse business audiences. Topics include writing effective summaries and reports, researching companies, and developing professional online profile. Offered in summer only. P/NP or letter grading.

**28. English through Language, Culture, and Society (4)** Lecture, four hours. Survey of selective language structures through their occurrence within contemporary cultural and societal topics within thematic, content-based English language learning environment. Focus on understanding and applying these structures to improve fluency while enhancing critical thinking skills. Meaningful discussions in conjunction with salient written/spoken assignments that situate language within authentic contexts. Topics may include gender, sexuality, politics, humor, intercultural communication, media, environmental issues, and local/regional identities. P/NP or letter grading.

**89. Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to lower-division lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**89HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to lower-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**97A. Variable Topics in English as a Second Language (4)** Lecture, four hours. Specialized topics in English as second language or English for academic purposes. Emphasis varies according to topics covered and/or audience to whom course is directed. May be repeated for credit with topic change. Offered in summer only. P/NP (undergraduates), S/U (graduates), or letter grading.

**97B. Variable Topics in English as a Second Language (2)** Lecture, two hours. Enforced requisite: course 33B or proficiency demonstrated on English as a Second Language Placement Examination. Specialized topics in English as second language or English for academic purposes. Emphasis varies according to topics covered and/or audience to whom course is directed. May be repeated for credit with topic change. P/NP (undergraduates) or S/U (graduates) grading.

**99. Student Research Program (1 to 2)** Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower-division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

### Upper Division

**103. Pronunciation for Multilingual Students (4)** Lecture, four hours. Emphasis on accurate articulation of sounds, word stress, rhythm, linking between syllables, intonation, and other features of fluent spoken English, using variety of videorecorded models and online pronunciation resources. Individualized feedback provided through frequent recording assignments. P/NP or letter grading.

**104. Public Speaking for Multilingual Students (4)** Lecture, four hours. Emphasis on making presentations in academic and professional settings, interacting with audience members, leading group discussions, and preparing for job interviews. Videorecording of student performances to allow students to improve through self and peer evaluation, as well as through individualized instructor feedback. P/NP or letter grading.

**105. Advanced Grammar and Style for Multilingual Students (4)** Lecture, four hours. Review of form and use of common grammatical structures found in academic discourse. Analysis of stylistic function of certain structures and practice in self-editing strategies. P/NP or letter grading.

**106. Workshop in Disciplinary Writing for Multilingual Students (4)** Lecture, four hours. Requisite: satisfaction of English as a Second Language requirement. Writing of texts that are rhetorically appropriate for discipline-specific audiences. Extensive revising of papers to allow writers to edit their texts for grammatical appropriateness and for clear and coherent style. Focus on language and writing issues of concern to multilingual writers. P/NP or letter grading.

**107. Academic Reading and Vocabulary for Multilingual Students (4)** Lecture, four hours. Instruction in and practice of academic reading skills using authentic university texts. Focus on improving reading rate and comprehension, expanding academic vocabulary, and developing critical reading skills. P/NP or letter grading.

**109. Literature and Language for Multilingual Students (4)** Lecture, four hours. Requisite: satisfaction of English as a Second Language requirement. Introduction to effective approaches to appreciating and analyzing variety of

literature written in English. Review of literary techniques and terms to deepen understanding of poetry, short stories, and novels. Focus on author styles and grammatical and vocabulary choices. P/NP or letter grading.

**189. Advanced Honors Seminars (1)** Seminar, three hours. Limited to 20 students. Designed as adjunct to undergraduate lecture course. Exploration of topics in greater depth through supplemental readings, papers, or other activities and led by lecture course instructor. May be applied toward honors credit for eligible students. Honors content noted on transcript. P/NP or letter grading.

**189HC. Honors Contracts (1)** Tutorial, three hours. Limited to students in College Honors Program. Designed as adjunct to upper-division lecture course. Individual study with lecture course instructor to explore topics in greater depth through supplemental readings, papers, or other activities. May be repeated for maximum of 4 units. Individual honors contract required. Honors content noted on transcript. Letter grading.

**197. Individual Studies in English as a Second Language (4)** Tutorial, four hours. Limited to juniors/seniors. Individual intensive study for undergraduate and graduate students who desire more advanced or specialized treatment of issues in English as second language beyond those covered in current course offerings. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see academic coordinator. P/NP (undergraduates), S/U (graduates), or letter grading.

## Graduate

**300. Intermediate Writing and Communication for International Graduate Students (4)** Lecture, five hours. Enforced requisite: proficiency demonstrated on English as a Second Language Placement Examination. Development of academic reading, writing, and language skills with focus on reading comprehension, vocabulary development, and analysis of discipline-specific research articles, with additional work on fundamental composition techniques, grammar, and editing. S/U or letter grading.

**301. High-Intermediate Writing and Communication for International Graduate Students (4)** Lecture, five hours. Enforced requisite: course 300 or proficiency demonstrated on English as a Second Language Placement Examination. Development of academic writing skills with focus on reading comprehension, vocabulary development, and composition techniques, with additional work on grammar and editing. S/U or letter grading.

### **302. Advanced Writing Workshop for International Graduate Students (4)**

Lecture, five hours. Requisite: course 301 or proficiency demonstrated on English as a Second Language Placement Examination. Writing and revision of papers for academic work or publication in student fields of study. Emphasis on rhetorical strategies as well as stylistic and organizational conventions for presenting research-based arguments in disciplines including humanities, social sciences, and pure and applied sciences. Focus on grammar structures and vocabulary that contribute to clear and coherent writing style. S/U or letter grading.

**310. Pronunciation for International Teaching Assistants (4)** Lecture, five hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who have received marginal pass on TOP. Focus on accurate articulation of sounds, word stress, linking, and other features of fluent spoken English, using authentic models of classroom language. Additional emphasis on comprehending typical undergraduate speech. Frequent audio-recordings and videorecordings provide opportunity for self-review and individualized instructor feedback. S/U grading.

### **311. Classroom Communication for International Teaching Assistants I (4)**

Lecture, five hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who received marginal pass on TOP. Focus on stress, rhythm, and intonation of fluent spoken English using videos and transcripts of actual teaching assistants. Communication patterns include introducing syllabus, explaining visuals, handling questions, and interacting in office hours. Microteaching performances videorecorded for self, peer, and instructor evaluation. S/U grading.

### **312. Classroom Communication for International Teaching Assistants II (4)**

Lecture, five hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who received marginal pass on TOP. Course 311 is not requisite to 312. Focus on stress, rhythm, and intonation of fluent spoken English using videos and transcripts of actual teaching assistants. Communication patterns include building rapport, giving instructions, handling questions, encouraging participation, and organizing lessons. Microteaching performances videorecorded for self, peer, and instructor evaluation. S/U grading.

### **313. Presentation and Discussion-Leading Skills for International Teaching Assistants (4)**

Lecture, five hours. Satisfies Test of Oral Proficiency (TOP) requirement for international graduate students who received marginal pass on TOP. Focus on communicating effectively as teaching assistants through interactive teaching demonstrations and student-led discussions of topics from one's own field. Emphasis on presenting academic subject matter in well-organized, interactive, and accessible way. Student performances videorecorded for extensive self, peer, and instructor evaluation. S/U grading.